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Service Manual

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PHILIPS

1. Technical Specifications, Connections, and Chassis Overview

Index of this chapter:

Note: Data below can deviate slightly from the actual situation, due to the different set executions.

1.1 Technical Specifications

1.1.1 Vision

Display type	:	CRT, DV, RF
Screen size	:	29" (72 cm), 4:3
	:	32" (82 cm), 16:9
Tuning system	:	PLL
TV Colour systems	:	PAL B/G, D/K, I
	:	SECAM B/G, D/K, L/L'
Video playback	:	NTSC M/N 3.58, 4.43
	:	PAL B/G
	:	SECAM L/L'
Presets/channels	:	100 presets
Supported video formats	:	640x480i - 1fH
	:	720x576i - 1fH
	:	640x480p - 2fH
	:	720x576p - 2fH
	:	1920x1080i - 2fH
	:	1280x720p - 3fH
Tuner bands	:	VHF
	:	UHF
	:	S-band
	:	Hyper-band

1.1.2 Sound

Sound systems	:	FM-mono
	:	AM-mono
	:	FM-stereo B/G
	:	NICAM B/G, D/K, I, L
	:	AV Stereo
Maximum power (W_{RMS})	:	2 x 10

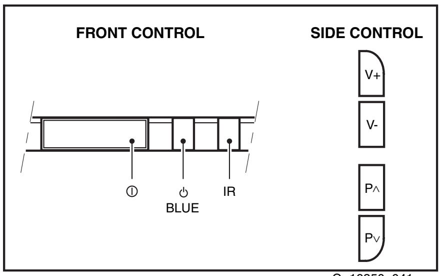
1.1.3 Miscellaneous

Power supply:		
- Mains voltage (V_{AC})	:	220 - 240
- Mains frequency (Hz)	:	50 / 60
Ambient conditions:		
- Temperature range (°C)	:	-5 to +40
- Maximum humidity	:	95% R.H.
Power consumption		
- Normal operation (W)	:	≈ 110 (29")
	:	≈ 115 (32")
- Stand-by (W)	:	< 1
Dimensions (WxHxD cm)	:	74.0x58.3x48.4 (29")
	:	86.2x55.4x52.8 (32")
Weight (kg)	:	44 (29")
	:	50 (32")

1.2 Connection Overview

Note: The following connector colour abbreviations are used (acc. to DIN/IEC 757): Bk= Black, Bu= Blue, Gn= Green, Gy= Grey, Rd= Red, Wh= White, and Ye= Yellow.

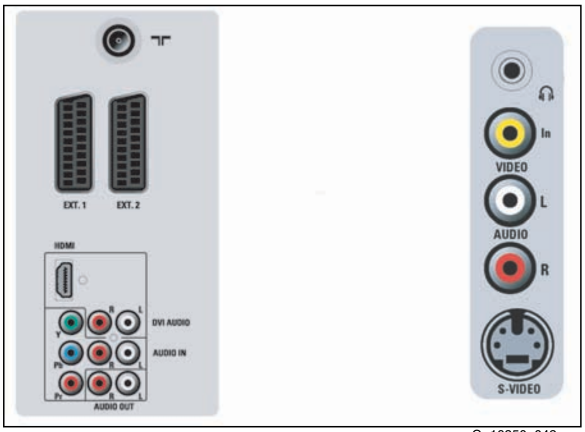
1.2.1 Front / Side Control



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Figure 1-1 Front / side control

1.2.2 Rear / Side Connections



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Figure 1-2 Rear and side connections

Aerial - In

-	- IEC-type (EU)	Coax, 75 ohm

Cinch: Video CVBS - In, Audio - In

Ye	- Video CVBS	1 V_{PP} / 75 ohm
Wh	- Audio L	0.5 V_{RMS} / 10 kohm
Rd	- Audio R	0.5 V_{RMS} / 10 kohm

SVHS (Hosiden): Video Y/C - In

1	- Ground Y	Gnd
2	- Ground C	Gnd
3	- Video Y	1 V_{PP} / 75 ohm
4	- Video C	0.3 V_{PP}P / 75 ohm

Mini Jack: Audio Headphone - Out

Bk	- Head phone	32 - 600 ohm / 10 mW

Service Connector (For IAP Tool)

1	- SDA-S	I^2C Data (0 - 5 V)
2	- SCL-S	I^2C Clock (0 - 5 V)
3	- Ground	Gnd

EXT1: Video RGB - In, CVBS - In/Out, Audio - In/Out

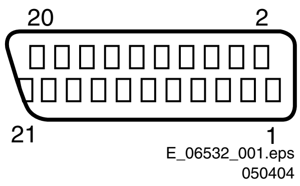


Figure 1-3 SCART connector

1	- Audio R	0.5 V_{RMS} / 1 kohm
2	- Audio R	0.5 V_{RMS} / 10 kohm
3	- Audio L	0.5 V_{RMS} / 1 kohm
4	- Ground Audio	Gnd
5	- Ground Blue	Gnd
6	- Audio L	0.5 V_{RMS} / 10 kohm
7	- Video Blue/U	0.7 V_{PP} / 75 ohm
8	- Function Select	0 - 2 V: INT 4.5 - 7 V: EXT 16:9 9.5 - 12 V: EXT 4:3
9	- Ground Green	Gnd
10	- n.c.	
11	- Video Green/Y	0.7 V_{PP} / 75 ohm
12	- n.c.	
13	- Ground Red	Gnd
14	- Ground FBL	Gnd
15	- Video Red/V	0.7 V_{PP} / 75 ohm
16	- Status/FBL	0 - 0.4 V: INT 1 - 3 V: EXT / 75 ohm
17	- Ground Video	Gnd
18	- Ground Video	Gnd
19	- Video CVBS	1 V_{PP} / 75 ohm
20	- Video CVBS	1 V_{PP} / 75 ohm
21	- Shield	Gnd

EXT2: Video YC - In, CVBS - In/Out, Audio - In/Out

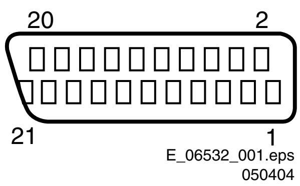


Figure 1-4 SCART connector

1	- Audio R	0.5 V_{RMS} / 1 kohm
2	- Audio R	0.5 V_{RMS} / 10 kohm
3	- Audio L	0.5 V_{RMS} / 1 kohm
4	- Ground Audio	Gnd
5	- Ground Blue	Gnd
6	- Audio L	0.5 V_{RMS} / 10 kohm
7	- C-FRONT	0.7 V_{PP} / 75 ohm
8	- Function Select	0 - 2 V: INT 4.5 - 7 V: EXT 16:9 9.5 - 12 V: EXT 4:3
9	- Ground Green	Gnd
10	- Easylink P50	0 - 5 V / 4.7 kohm
11	- n.c.	
12	- n.c.	
13	- Ground Red	Gnd
14	- Ground Data	Gnd
15	- C	0.7 V_{PP} / 75 ohm
16	- n.c.	
17	- Ground Video	Gnd
18	- Ground FBL	Gnd
19	- Video CVBS	1 V_{PP} / 75 ohm
20	- Video CVBS/Y	1 V_{PP} / 75 ohm
21	- Shield	Gnd

HDMI: Digital Video, Digital Audio - In

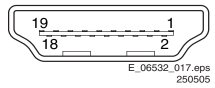


Figure 1-5 HDMI (type A) connector

1	- D2+	Data channel
2	- Shield	Gnd
3	- D2-	Data channel
4	- D1+	Data channel
5	- Shield	Gnd
6	- D1-	Data channel
7	- D0+	Data channel
8	- Shield	Gnd
9	- D0-	Data channel
10	- CLK+	Data channel
11	- Shield	Gnd
12	- CLK-	Data channel
13	- n.c.	
14	- n.c.	
15	- DDC_SCL	DDC clock
16	- DDC_SDA	DDC data
17	- Ground	Gnd
18	- +5V	
19	- HPD	Hot Plug Detect
20	- Ground	Gnd

Cinch: Video YPbPr - In

Gn	- Video Y	1 V_{PP} / 75 ohm
Bu	- Video Pb	0.7 V_{PP} / 75 ohm
Rd	- Video Pr	0.7 V_{PP} / 75 ohm

Cinch: DVI Audio - In

Rd	- Audio - R	0.5 V_{RMS} / 10 kohm
Wh	- Audio - L	0.5 V_{RMS} / 10 kohm

Cinch: HD/CVI Audio - In

Rd	- Audio - R	0.5 V_{RMS} / 10 kohm
Wh	- Audio - L	0.5 V_{RMS} / 10 kohm

Cinch: Audio - Out

Rd	- Audio - R	0.5 V_{RMS} / 10 kohm
Wh	- Audio - L	0.5 V_{RMS} / 10 kohm

1.3 Chassis Overview

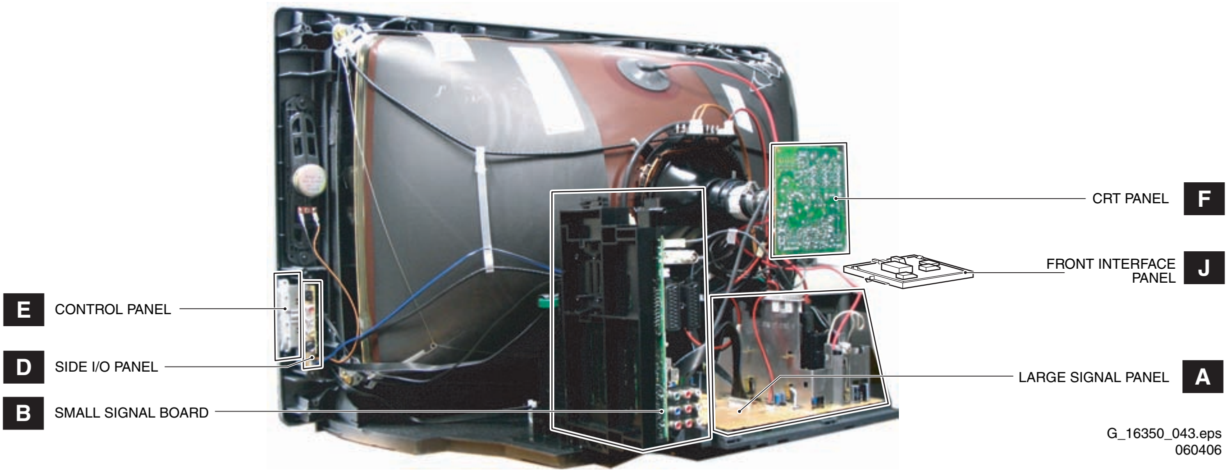


Figure 1-6 PWB location

2. Safety Instructions, Warnings, and Notes

Index of this chapter:

2.1 Safety Instructions

Safety regulations require the following **during** a repair:

- Connect the set to the Mains/AC Power via an isolation transformer (> 800 VA).
- Replace safety components, indicated by the symbol ⚠, only by components identical to the original ones. Any other component substitution (other than original type) may increase risk of fire or electrical shock hazard.
- Wear safety goggles when you replace the CRT.

Safety regulations require that **after** a repair, the set must be returned in its original condition. Pay in particular attention to the following points:

- General repair instruction: as a strict precaution, we advise you to re-solder the solder connections through which the horizontal deflection current flows. In particular this is valid for the:
  1. Pins of the line output transformer (LOT).
  2. Fly-back capacitor(s).
  3. S-correction capacitor(s).
  4. Line output transistor.
  5. Pins of the connector with wires to the deflection coil.
  6. Other components through which the deflection current flows.

Note: This re-soldering is advised to prevent bad connections due to metal fatigue in solder connections, and is therefore only necessary for television sets more than two years old.

- Route the wire trees and EHT cable correctly and secure them with the mounted cable clamps.
- Check the insulation of the Mains/AC Power lead for external damage.
- Check the strain relief of the Mains/AC Power cord for proper function, to prevent the cord from touching the CRT, hot components, or heat sinks.
- Check the electrical DC resistance between the Mains/AC Power plug and the secondary side (only for sets that have a Mains/AC Power isolated power supply):
  1. Unplug the Mains/AC Power cord and connect a wire between the two pins of the Mains/AC Power plug.
  2. Set the Mains/AC Power switch to the "on" position (keep the Mains/AC Power cord unplugged!).
  3. Measure the resistance value between the pins of the Mains/AC Power plug and the metal shielding of the tuner or the aerial connection on the set. The reading should be between 4.5 Mohm and 12 Mohm.
  4. Switch "off" the set, and remove the wire between the two pins of the Mains/AC Power plug.
- Check the cabinet for defects, to prevent touching of any inner parts by the customer.

2.2 Maintenance Instructions

We recommend a maintenance inspection carried out by qualified service personnel. The interval depends on the usage conditions:

- When a customer uses the set under normal circumstances, for example in a living room, the recommended interval is three to five years.
- When a customer uses the set in an environment with higher dust, grease, or moisture levels, for example in a kitchen, the recommended interval is one year.
- The maintenance inspection includes the following actions:
  1. Perform the "general repair instruction" noted above.
  2. Clean the power supply and deflection circuitry on the chassis.
  3. Clean the picture tube panel and the neck of the picture tube.

2.3 Warnings

- In order to prevent damage to ICs and transistors, avoid all high voltage flashovers. In order to prevent damage to the picture tube, use the method shown in figure "Discharge picture tube", to discharge the picture tube. Use a high voltage probe and a multi-meter (position V_{DC}). Discharge until the meter reading is 0 V (after approx. 30 s).

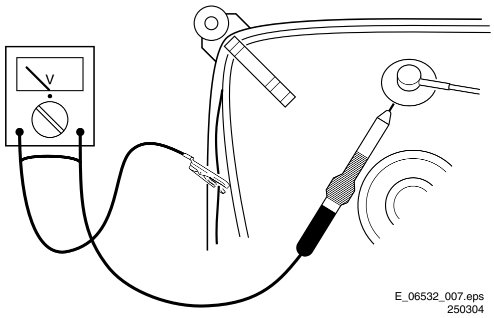


Figure 2-1 Discharge picture tube

- All ICs and many other semiconductors are susceptible to electrostatic discharges (ESD ⚠). Careless handling during repair can reduce life drastically. Make sure that, during repair, you are connected with the same potential as the mass of the set by a wristband with resistance. Keep components and tools also at this same potential. Available ESD protection equipment:
  – Complete kit ESD3 (small tablemat, wristband, connection box, extension cable and earth cable) 4822 310 10671.
  – Wristband tester 4822 344 13999.
- Be careful during measurements in the high voltage section.
- Never replace modules or other components while the unit is switched "on".
- When you align the set, use plastic rather than metal tools. This will prevent any short circuits and prevents circuits from becoming unstable.

2.4 Notes

2.4.1 General

- Measure the voltages and waveforms with regard to the chassis (= tuner) ground (⏚), or hot ground (⏚), depending on the tested area of circuitry. The voltages and waveforms shown in the diagrams are indicative. Measure them in the Service Default Mode (see chapter 5) with a colour bar signal and stereo sound (L: 3 kHz, R: 1 kHz unless stated otherwise) and picture carrier at 475.25 MHz for PAL, or 61.25 MHz for NTSC (channel 3).
- Where necessary, measure the waveforms and voltages with (⫪) and without (⌧) aerial signal. Measure the voltages in the power supply section both in normal operation (⏽) and in stand-by (⏻). These values are indicated by means of the appropriate symbols.
- The semiconductors indicated in the circuit diagram and in the parts lists, are interchangeable per position with the

semiconductors in the unit, irrespective of the type indication on these semiconductors.
- Manufactured under license from Dolby Laboratories. “Dolby”, “Pro Logic” and the “double-D symbol”, are trademarks of Dolby Laboratories.

2.4.2 Schematic Notes

- All resistor values are in ohms, and the value multiplier is often used to indicate the decimal point location (e.g. 2K2 indicates 2.2 kohm).
- Resistor values with no multiplier may be indicated with either an "E" or an "R" (e.g. 220E or 220R indicates 220 ohm).
- All capacitor values are given in micro-farads (μ= x10^{-6}), nano-farads (n= x10^{-9}), or pico-farads (p= x10^{-12}).
- Capacitor values may also use the value multiplier as the decimal point indication (e.g. 2p2 indicates 2.2 pF).
- An "asterisk" (*) indicates component usage varies. Refer to the diversity tables for the correct values.
- The correct component values are listed in the Spare Parts List. Therefore, always check this list when there is any doubt.

2.4.3 Rework on BGA (Ball Grid Array) ICs

General
Although (LF)BGA assembly yields are very high, there may still be a requirement for component rework. By rework, we mean the process of removing the component from the PWB and replacing it with a new component. If an (LF)BGA is removed from a PWB, the solder balls of the component are deformed drastically so the removed (LF)BGA has to be discarded.

Device Removal
As is the case with any component that is being removed, it is essential when removing an (LF)BGA, that the board, tracks, solder lands, or surrounding components are not damaged. To remove an (LF)BGA, the board must be uniformly heated to a temperature close to the reflow soldering temperature. A uniform temperature reduces the risk of warping the PWB.
To do this, we recommend that the board is heated until it is certain that all the joints are molten. Then carefully pull the component off the board with a vacuum nozzle. For the appropriate temperature profiles, see the IC data sheet.

Area Preparation
When the component has been removed, the vacant IC area must be cleaned before replacing the (LF)BGA.
Removing an IC often leaves varying amounts of solder on the mounting lands. This excessive solder can be removed with either a solder sucker or solder wick. The remaining flux can be removed with a brush and cleaning agent.
After the board is properly cleaned and inspected, apply flux on the solder lands and on the connection balls of the (LF)BGA.
Note: Do not apply solder paste, as this has been shown to result in problems during re-soldering.

Device Replacement
The last step in the repair process is to solder the new component on the board. Ideally, the (LF)BGA should be aligned under a microscope or magnifying glass. If this is not possible, try to align the (LF)BGA with any board markers.
So as not to damage neighbouring components, it may be necessary to reduce some temperatures and times.

More Information
For more information on how to handle BGA devices, visit this URL: *www.atyourservice.ce.philips.com* (needs subscription, not available for all regions). After login, select “Magazine”, then go to “Repair downloads”. Here you will find Information on how to deal with BGA-ICs.

2.4.4 Lead-free Solder

Philips CE is producing lead-free sets (PBF) from 1.1.2005 onwards.

Identification: The bottom line of a type plate gives a 14-digit serial number. Digits 5 and 6 refer to the production year, digits 7 and 8 refer to production week (in example below it is 1991 week 18).



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Figure 2-2 Serial number example

Regardless of the special lead-free logo (which is not always indicated), one must treat all sets from this date onwards according to the rules as described below.

Figure 2-3 Lead-free logo

Due to lead-free technology some rules have to be respected by the workshop during a repair:
- Use only lead-free soldering tin Philips SAC305 with order code 0622 149 00106. If lead-free solder paste is required, please contact the manufacturer of your soldering equipment. In general, use of solder paste within workshops should be avoided because paste is not easy to store and to handle.
- Use only adequate solder tools applicable for lead-free soldering tin. The solder tool must be able:
  - To reach a solder-tip temperature of at least 400°C.
  - To stabilise the adjusted temperature at the solder-tip.
  - To exchange solder-tips for different applications.
- Adjust your solder tool so that a temperature of around 360°C - 380°C is reached and stabilised at the solder joint. Heating time of the solder-joint should not exceed ~ 4 sec. Avoid temperatures above 400°C, otherwise wear-out of tips will increase drastically and flux-fluid will be destroyed. To avoid wear-out of tips, switch “off” unused equipment or reduce heat.
- Mix of lead-free soldering tin/parts with leaded soldering tin/parts is possible but PHILIPS recommends strongly **to avoid** mixed regimes. If this cannot be avoided, carefully clean the solder-joint from old tin and re-solder with new tin.
- Use only original spare-parts listed in the Service-Manuals. Not listed standard material (commodities) has to be purchased at external companies.
- Special information for lead-free BGA ICs: these ICs will be delivered in so-called "dry-packaging" to protect the IC against moisture. This packaging may only be opened shortly before it is used (soldered). Otherwise the body of the IC gets "wet" inside and during the heating time the structure of the IC will be destroyed due to high (steam-) pressure inside the body. If the packaging was opened before usage, the IC has to be heated up for some hours (around 90°C) for drying (think of ESD-protection!).
  Do not re-use BGAs at all!

- For sets produced before 1.1.2005, containing leaded soldering tin and components, all needed spare parts will be available till the end of the service period. For the repair of such sets nothing changes.

In case of doubt whether the board is lead-free or not (or with mixed technologies), you can use the following method:
- Always use the highest temperature to solder, when using SAC305 (see also instructions below).
- De-solder thoroughly (clean solder joints to avoid mix of two alloys).

Caution: For BGA-ICs, you **must** use the correct temperature-profile, which is coupled to the 12NC. For an overview of these profiles, visit the website *www.atyourservice.ce.philips.com* (needs subscription, but is not available for all regions)
You will find this and more technical information within the "Magazine", chapter "Repair downloads".
For additional questions please contact your local repair help desk.

2.4.5 Alternative BOM identification

In September 2003, Philips CE introduced a change in the way the serial number (or production number, see Figure 2-2) is composed. From this date on, the **third digit** in the serial number (example: AG**2**B0335000001) indicates the number of the alternative BOM (Bill of Materials used for producing the specific model of TV set). It is possible that the same TV model on the market is produced with e.g. two different types of displays, coming from two different O.E.M.s.
By looking at the third digit of the serial number, the service technician can see if there is more than one type of B.O.M. used in the production of the TV set he is working with. He can then consult the At Your Service Web site, where he can type in the Commercial Type Version Number of the TV set (e.g. 29PT9521/12), after which a screen will appear that gives information about the number of alternative B.O.M.s used.
If the third digit of the serial number contains the number 1 (example: AG**1**B033500001), then there is only one B.O.M. version of the TV set on the market. If the third digit is a 2 (example: AG**2**B0335000001), then there are two different B.O.M.s. ***Information about this is important for ordering the correct spare parts!***
For the third digit, the numbers 1...9 and the characters A...Z can be used, so in total: 9 plus 26 = 35 different B.O.M.s can be indicated by the third digit of the serial number.

2.4.6 Practical Service Precautions

- **It makes sense to avoid exposure to electrical shock.** While some sources are expected to have a possible dangerous impact, others of quite high potential are of limited current and are sometimes held in less regard.
- **Always respect voltages**. While some may not be dangerous in themselves, they can cause unexpected reactions that are best avoided. Before reaching into a powered TV set, it is best to test the high voltage insulation. It is easy to do, and is a good service precaution.

3. Directions for Use

You can download this information from the following websites:
http://www.philips.com/support
http://www.p4c.philips.com

4. Mechanical Instructions

Index of this chapter:

Note: Figures below can deviate slightly from the actual situation, due to the different set executions.

4.1 Service Connector (for IAP)

For software uploading with the IAP tool (In Application Programming), it is not necessary to remove EEPROMs from the set. You only have to connect the IAP interface circuit to the service connector (on the rear of the set, and start the software uploading (see also chapter 5 "Service Modes, Error Codes, and Fault Finding").

4.2 Set Disassembly

Follow the disassemble instructions in described order.

4.2.1 Rear Cover Removal

Warning: disconnect the mains power cord before you remove the rear cover.

1. Remove all the fixation screws of the rear cover.
2. Now the rear cover can be removed.

4.3 Service Positions

Only the LSP of this chassis has a service position for better access to the component side of the LSP. For the SSB, there is no specific service position.

4.3.1 Large Signal Panel (LSP)

Component Side LSP

For better accessibility of the LSP, do the following (see Figures “Service position LSP” and “Locking handles LSP”):

1. Simultanuously do the following: a) pull the two plastic locking handles at the mid left and mid right side of the bracket gently backwards to unlock the bracket, and b) loosen the bracket from the bottom tray, by pulling it backwards. N.B.: You do not need to pull the other two locking handles backwards.
2. Remove the LSP-bracket from the bottom tray by lifting it upwards.
3. Hook the bracket in the first row of fixation holes of the bottom tray. In other words, reposition the bracket from [1] to [2].

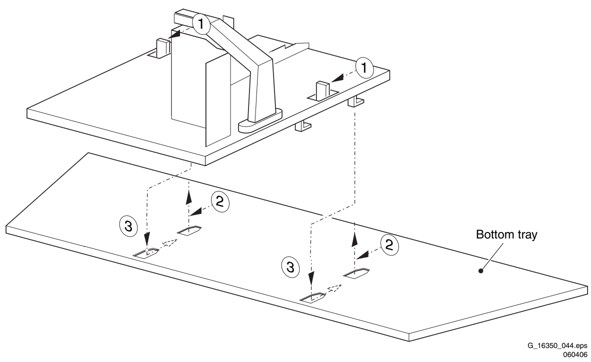
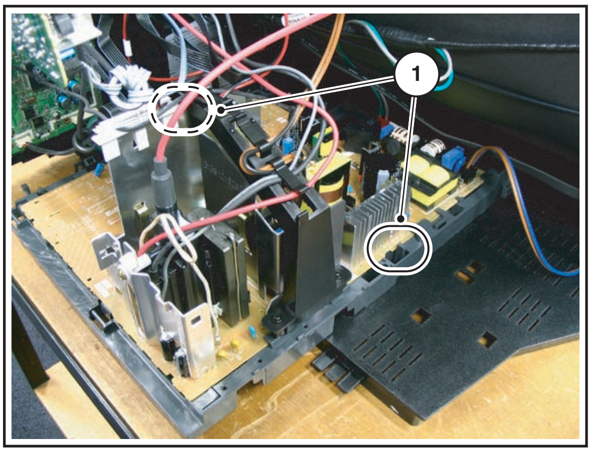


Figure 4-1 Service position LSP



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Figure 4-2 Locking handles LSP

Solder Side LSP

To get access to the bottom side (solder side) of the LSP, do the following:

1. Remove all the connectors from the LSP.
2. Remove the LSP, still in its plastic bracket, from the chassis, so the bottom side of the LSP can be reached. If necessary, remove the LSP also from its plastic bracket.

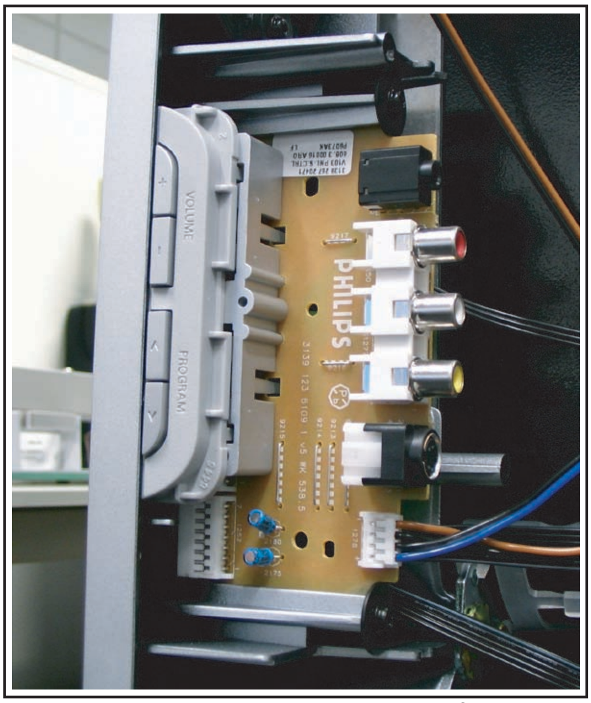
4.3.2 Small Signal Board (SSB)

There is no service position for the SSB. Most test points are located on the component side. If you have to replace ICs, you must remove the complete SSB module from the TV set (see further down in this chapter: Small Signal Board, SSB).

4.4 Assy / Board Removal

Sometimes, it can be necessary to swap a complete assy or Printed Wiring Board (PWB). How that can be done is explained below.

4.4.1 Top Control & Side I/O Assy/Panel

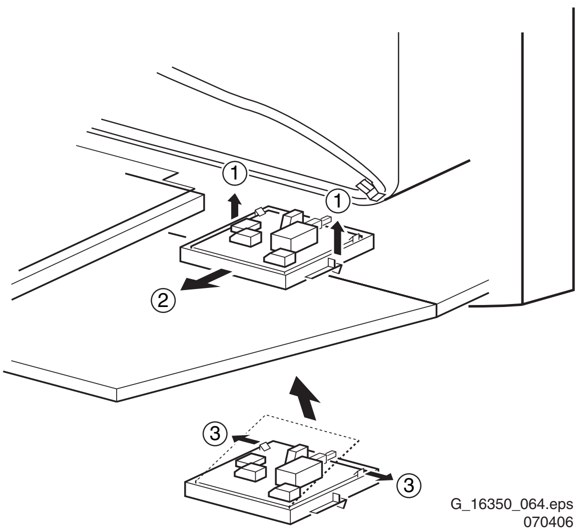


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Figure 4-3 Top control & Side I/O assy/panel

1. Remove the two fixation screws that hold the panel (see Figure “Top control & Side I/O assy/panel”).
2. Pull the board backwards and remove it from the TV set.
3. Remove, if necessary, all the connectors from the board.

4.4.2 Mains Switch/LED Panel

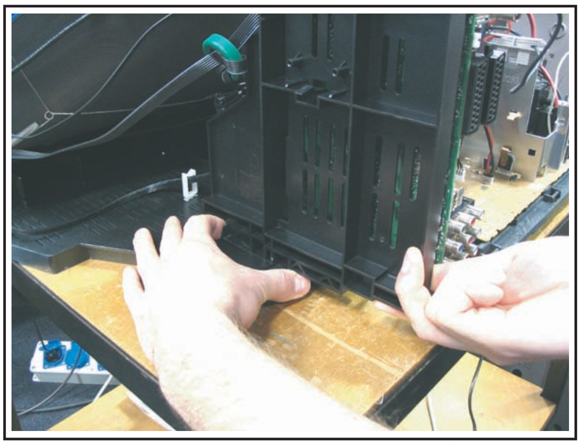


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Figure 4-4 Mains Switch / LED panel

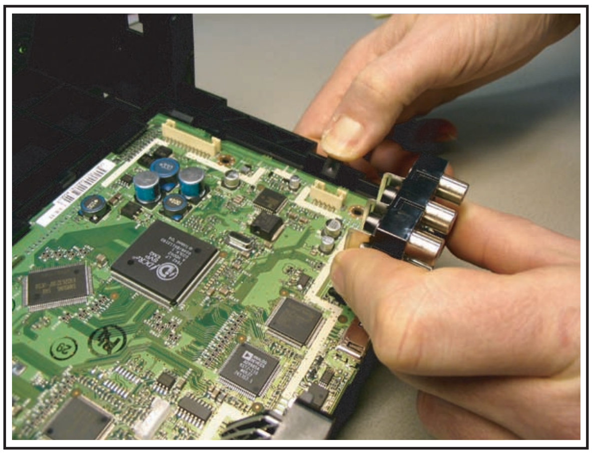
1. Release the two fixation clamps [1] by pushing them backwards and upwards (see Figures above).
2. Pull the complete assy backwards [2].
3. If the board has to be removed, release the two clamps at the sides of the bracket and lift the panel out [3].

4.4.3 Small Signal Board (SSB)



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Figure 4-5 SSB removal from chassis

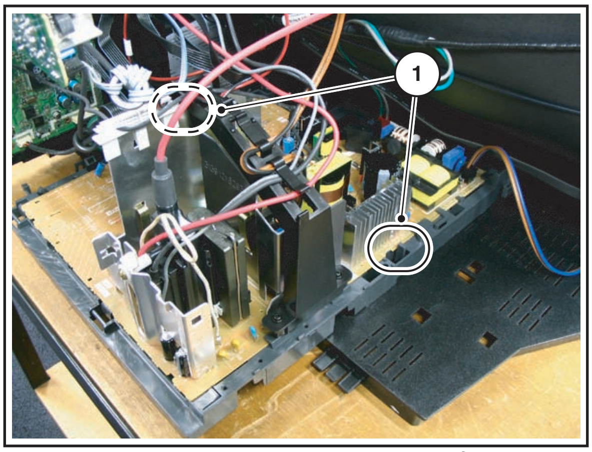


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Figure 4-6 SSB removal from bracket

1. Release the fixation clamp (see Figure “SSB removal from chassis”) by pushing it backwards.
2. Take the complete SSB out.
3. If the board has to be removed, release the two clamps at the sides of the bracket and lift the panel out (see Figure “SSB removal from bracket”).

4.4.4 Large Signal Panel (LSP)



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Figure 4-7 LSP locking handles

1. Simultanuously do the following:
   a. Pull the two plastic locking handles at the mid left and mid right side of the bracket gently backwards to unlock the bracket (see Figure "LSP locking handles"), and
   b. Loosen the bracket from the bottom tray, by pulling it backwards.
   N.B.: You do not need to pull the other two locking handles backwards.
2. Remove the LSP-bracket from the bottom tray by lifting it upwards.
3. Remove all cables from the LSP.
4. Remove the board from the bracket by unhooking it from its fixation clamps.

4.5 Set Re-assembly

To re-assemble the whole set, do all processes in reverse order.
Be sure that, before the rear cover is mounted:
- The mains cord is postioned correctly in its guiding brackets (make sure that the strain relief will function correctly!).
- All wires/cables are returned in their original positions. This is very important, in view of the "hot" and "EHT" areas of the set.
- Check if **no wires are touching the heat sinks** that are on the LSP; this may dammage the cables!

5. Service Modes, Error Codes, and Fault Finding

Index of this chapter:

5.1 Test Points

This chassis is equipped with test points in the service printing. In the schematics, test points are identified with a rectangle box around Fxxx or Ixxx. These test points are specifically mentioned in the service manual as “half moons” with a dot in the centre.

The chassis is equipped with test points (Fxxx) printed on the circuit board assemblies. As most signals are digital, it will be almost impossible to measure waveforms with a standard oscilloscope. Therefore, waveforms are not given in this manual.

Perform measurements under the following conditions:
- Television set in Service Default Alignment Mode.
- Video input: Colour bar signal.
- Audio input: 3 kHz left channel, 1 kHz right channel.

5.2 Service Modes

Service Default mode (SDM) and Service Alignment Mode (SAM) offer several features for the service technician, while the Customer Service Mode (CSM) and the Digital Customer Service Mode (DCSM, only for TVs with digital reception module) are used for communication between the call centre and the customer.

This chassis offers the option of using the IAP Tool (In Application Programming), a hardware interface between a computer and the TV chassis, for software uploading to the TV set. See also paragraph "Service Tools: IAP Tool").

5.2.1 Service Default Mode (SDM)

Purpose
- To create a predefined setting for measurements to be made.
- To override software protections.
- To start the “Blinking LED Procedure”.
- To inspect the error buffer.
- To check the life timer.

Specifications

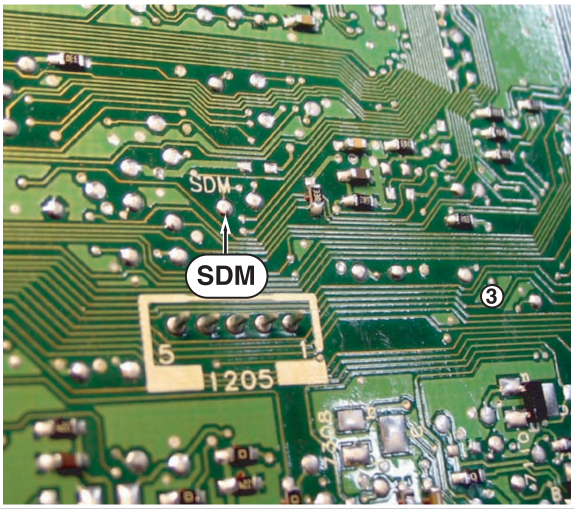
Table 5-1 SDM default settings

Region	Freq. (MHz)	Default system
Europe, AP-PAL/Multi	475.25	PAL B/G
NAFTA, AP-NTSC, LATAM	61.25 (ch. 3)	NTSC M

- All picture settings at 50% (brightness, colour contrast, hue).
- Bass, treble and balance at 50%; volume at 25%.
- All service-unfriendly modes (if present) are disabled. The service unfriendly modes are:
  – Timer / Sleep timer.
  – Child / parental lock.
  – Blue mute.
  – Hotel / hospital mode.
  – Auto shut off (when no “IDENT” video signal is received for 15 minutes).
  – Skipping of non-favourite presets / channels.
  – Auto-storage of personal presets.
  – Auto user menu time-out.
  – Auto Volume Levelling (AVL).

How to Enter

To enter SDM, use one of the following methods:
- Press the following key sequence on the remote control transmitter: “**062596**” directly followed by the MENU button (do not allow the OSD display to time out between entries while keying the sequence).
- Short the SDM contact to mass (see Figure "SDM Service contact") on the TV board and apply AC Power. Remove the short after start-up.
  Caution: Entering SDM by shorting the "Service" contact to mass will override the software protections. Do this only for a short period. **When doing this, the service-technician must know exactly what he is doing, as it could damage the television set**.



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Figure 5-1 SDM Service contact (for SDM: short to mass)

After entering SDM, the following screen is visible, with SDM in the upper right corner of the screen to indicate that the television is in Service Default Mode.

```
00025   L06EF1  1.2
ERR 0 0 0 0 0
OP 136 008 006 000 000 002 016

                                  m SDM
```

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Figure 5-2 SDM menu (example)

How to Navigate
When you press the MENU button on the remote control, the set will switch on the normal user menu in the SDM mode.

How to Exit
Switch the set to STANDBY by pressing the POWER button on the remote control transmitter.
If you turn the television set off by removing the mains (i.e., unplugging the television) or by using the POWER button on the TV set, the television set will remain in SDM when mains is re-applied, and the error buffer is not cleared.

5.2.2 Service Alignment Mode (SAM)

Purpose
- To change option settings.
- To display / clear the error code buffer.
- To perform alignments.

Specifications
- Operation hours counter (maximum five digits displayed).
- Software version, Error codes, and Option settings display.
- Error buffer clearing.
- Option settings.
- Software alignments (Tuner, RGB Align, Geometry, and Audio).
- NVM Editor.
- IAP Mode switching (Compair mode not implemented).

How to Enter
Press the following key sequence on the remote control transmitter: "**062596**" directly followed by the OSD/STATUS/INFO button (do not allow the OSD display to time out between entries while keying the sequence).

After entering SAM, the following screen is visible, with SAM in the upper right corner of the screen to indicate that the television is in Service Alignment Mode.

```
00020    L06EF1  1.2
ERR    0   0   0   0   0

OP 136 008 006 000 000 002 016
. Clear              ▶  Yes
. Options            ▶
. Tuner              ▶
. RGB Align          ▶
. Geometry           ▶
. Audio              ▶
. NVM Editor         ▶
. ComPair            ▶              m SAM
```

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Figure 5-3 SAM menu (example)

Menu Explanation
1. **LLLLL.** This represents the run timer. The run timer counts normal operation hours (including "on/off" switching), but does not count stand-by hours.
2. **AAA.BC-X.Y.** This is the software identification of the Main/Scaler microprocessor:
   - **AAA.B** = the chassis name.
   - **B** = the display indicator.
   - **C**= the region: E= Europe, A= Asia Pacific, U= NAFTA, L= LATAM, G= Global.
   - **X**= the Main software version number (updated with a major change that is incompatible with previous versions).
   - **Y**= the sub software version number (updated with a minor change that is compatible with previous versions).
3. **Error Buffer (ERR).** Shows all errors detected since the last time the buffer was erased. Five errors possible.
4. **Option Bytes (OP).** Shows all option settings. See "Options" in the Alignments section for a detailed description. Seven codes are available.
5. **See Note below** (about other menu items).
6. **SAM.** Indication of the Service Alignment Mode.

Note: The other menu items (**Clear**, **Options**, **Tuner**, **RGB Align**, **Geometry**, **Audio**, **NVM Editor**, and **Compair**) are explained at the end of this chapter, together with the menu structure. See: "SAM Menu structure".

How to Navigate
- In SAM, select menu items with the CURSOR UP/DOWN keys on the remote control transmitter. The selected item will be highlighted. When not all menu items fit on the screen, use the CURSOR UP/DOWN keys to display the next / previous menu items.
- With the CURSOR LEFT/RIGHT keys, it is possible to:
  - Activate the selected menu item.
  - Change the value of the selected menu item.
  - Activate the selected submenu.
- In SAM, when you press the MENU button twice, the set will switch to the normal user menus (with the SAM mode still active in the background). To return to the SAM menu press the MENU button again.
- When you press the MENU key in while in a submenu, you will return to the previous menu.

How to store SAM settings
To store the settings changed in SAM mode, leave the top level SAM menu by using the POWER button on the remote control transmitter or the television set.

How to exit
Switch the set to STANDBY by pressing the POWER button on the remote control transmitter or on the television set.

5.2.3 Customer Service Mode (CSM)

Purpose
The Customer Service Mode shows error codes and information on the TV's operation settings. The call centre can instruct the customer (by telephone) to enter CSM in order to identify the status of the set. This helps the call centre to diagnose problems and failures in the TV set before making a service call.
The CSM is a read-only mode; therefore, modifications are not possible in this mode.

How to Enter
To enter CSM, press the following key sequence on the remote control transmitter: "**123654**" (do not allow the OSD display to time out between entries while keying the sequence).

Upon entering the Customer Service Mode, the following screen will appear:

```
1 00025    L06EF1  1.2
2 CODES 0   0   0   0   0
3 OP 136 008 006 000 000 002 016
4
5 CTN
6
7 PAL
8 DUAL I
9 CO  50  CL  50  BR  50  HU      0
0 AVL Off                        m  CSM
```

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Figure 5-4 CSM menu (example)

Menu Explanation

1. Indication of the decimal value of the operation hours counter, Main/Scaler software version (see "Service Alignment Mode" for an explanation), and service mode (CSM= Customer Service Mode).
2. Displays the last five errors detected in the error code buffer.
3. Displays the option bytes.
4. Reserved.
5. Displays the type number version of the set (option).
6. Reserved.
7. Displays the detected Colour system (e.g. PAL/NTSC).
8. Displays the detected Audio (e.g. stereo/mono).
9. Displays the picture setting information.
10. Displays the sound setting information.

How to Exit

To exit CSM, use one of the following methods:

- Press the MENU, STATUS (or EXIT/INFO/[i+]), or POWER button on the remote control transmitter.
- Press the POWER button on the television set.

5.3 Problems and Solving Tips Related to CSM

5.3.1 Picture Problems

Note: The problems described below are all related to the TV settings. The procedures used to change the value (or status) of the different settings are described.

Picture Too Dark or Too Bright

If:

- The picture improves when you enter the Customer Service Mode,

Then:

1. Press the MENU button on the remote control transmitter. This brings up the normal user menu; the PICTURE sub menu is highlighted.
2. Press the CURSOR RIGHT key to enter the PICTURE sub menu.
3. Press the CURSOR UP/DOWN keys to increase or decrease the BRIGHTNESS value.
4. Press the MENU button on the remote control transmitter twice to exit the user menu.
5. The new PERSONAL preference values are automatically stored.

White Line(s) Around Picture Elements and Text

If:

There are white lines around picture elements and text,

Then:

1. Press the MENU button on the remote control transmitter. This brings up the normal user menu (PICTURE is highlighted).
2. Use the CURSOR DOWN key to select SHARPNESS.
3. Press the CURSOR RIGHT key to enter the SHARPNESS adjustment mode.
4. Press the CURSOR UP/DOWN keys to increase or decrease the SHARPNESS value.
5. Press the MENU button on the remote control transmitter twice to exit the user menu.
6. The new PERSONAL preference value is automatically stored.

Snowy Picture

Check the following:

- Antenna not connected. Connect the antenna.
- No antenna signal or bad antenna signal. Connect a proper antenna signal.
- The tuner is faulty (in this case line 2, the Error Buffer line, will contain error number 9). Check the tuner and replace/ repair the tuner if necessary.

Black and White Picture

If:

- The picture is (nearly) in black and white when it should be in colour,

Then:

1. Press the MENU button on the remote control transmitter. This brings up the normal user menu (PICTURE is highlighted).
2. Press the CURSOR RIGHT key to enter the PICTURE sub menu.
3. Use the CURSOR DOWN key to select COLOUR.
4. Press the CURSOR UP/DOWN keys to increase the COLOUR value.
5. Press the MENU button on the remote control transmitter twice to exit the user menu.
6. The new PERSONAL preference value is automatically stored.

5.4 Service Tools

5.4.1 IAP Tool: system requirements

PC

The PC used for IAP should meet the following criteria:

- Parallel Port;
- Windows XP Operating System;
- 60 MB free disk space.

5.4.2 IAP Tool: use

Introduction

The IAP Tool (In Application Programming) is a service tool for uploading software to a TV set (see Figure “IAP Interface”).
In order to use IAP, the following items should be available:

- **PC**;
- **TV set**, to be put in the IAP mode (only when it is connected to the PC via the IAP interface);
- **IAP interface,** (parallel to I^2C, for the connection between a PC and the TV set);
- **IAP Trident EXSDK software package,** software will be available via your national service organisation.

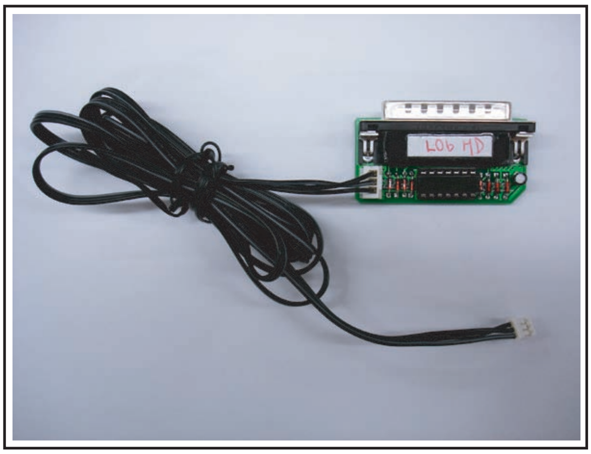
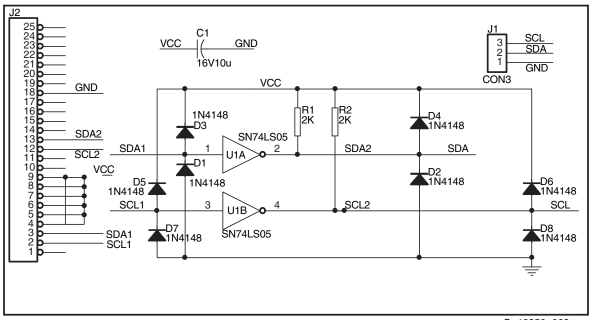

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Figure 5-5 IAP interface



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Figure 5-6 IAP interface circuit diagram

Installing the IAP software on a PC

When all the items mentioned above are present, install the software on a PC as follows:

- Extract the Trident EXSDK package (EXSDK.zip) into C:\Trident\Bin.
- The IAPWriter6.exe file is now inside the Bin folder.

Programming the Flash IC

The pre-requisite for flashing the software is that the Flash IC should have a bootloader (this means that there is already software on the TV set). To start the flashing, do as follows:

- Turn on the TV set, enter SAM mode > IAP. The TV is now in the IAP mode.
- Connect the PC to the TV via the Parallel-to-I^2C card (IAP Interface).
- Double-click on C:\Trident\Bin\IAPWriter6.exe in order to launch the IAP writer. The main interface will appear.
- Check that these parameters are set correctly:

DEVICE	STM29W400DT
MPU Start Address	080000
MPU End Address	0FBFFF
Buffer Start Address	000000
Buffer End Address	07FFFF

  Note: The device depends on the Flash IC used.

- Select File > Load, and select the .bin file to be programmed to the Flash IC.
- Select File Type “Binary”.
- Select “Write Device”.
  Note: If there are no errors reported, the programming is successful.
  Note: Sometimes, an error message may appear. Please try a few times if this happens.

How to Order

Note: If you encounter any problems, contact your local support desk.

5.5 Error Codes

5.5.1 Introduction

The error code buffer contains all detected errors since the last time the buffer was erased. The buffer is written from left to right, new errors are logged at the left side, and all other errors shift one position to the right.
When an error has occurred, the error is added to the list of errors, provided the list is not full or the error is a protection error.
When an error occurs and the error buffer is full, then the new error is not added, and the error buffer stays intact (history is maintained), except when the error is a protection error.
To prevent that an occasional error stays in the list forever, the error is removed from the list after 50+ operation hours.
When multiple errors occur (errors occurred within a short time span), there is a high probability that there is some relation between them.

5.5.2 How to Read the Error Buffer

Use one of the following methods:

- On screen via the SAM (only if you have a picture). Examples:
  - **0 0 0 0**: No errors detected
  - **6 0 0 0**: Error code 6 is the last and only detected error
  - **9 6 0 0**: Error code 6 was first detected and error code 9 is the last detected error
- Via the blinking LED procedure (when you have no picture). See next paragraph.
- Via IAP.

5.5.3 How to Clear the Error Buffer

Use **one** of the following methods:

- By activation of the “CLEAR ERRORS” command in the SAM menu.
- With a normal RC, key in sequence “MUTE” followed by “**062599**” and “OK”.
- If the content of the error buffer has not changed for 50+ hours, it resets automatically.

5.5.4 Error Codes

The function of error codes is to indicate failures in the TV set. In principle a unique error code is available for every:

- I^2C device error.
- I^2C bus error (for every bus containing two or more I^2C devices).
- Protection error (e.g. +8V protection or Horizontal protection).
- Error not related to an I^2C device, but of importance (e.g. BC-loop, RAM error).

Table 5-2 Error Table

Error	Description
0	0 = No error
2	High beam (BCI) protection
3	Vertical guard protection
4	POR bit / +8 V protection
7	Black current loop instability protection
8	General I^2C error Microprocessor (M30620FCNGP)
9	I^2C error while communicating with the PLL tuner (UV1316E)
10	I^2C error while communicating with the EEPROM (NVM at uP, M24C64)
11	I^2C error while communicating with the IF demodulator (TDA9886T/V4)
12	I^2C error while communicating with the Trident (SVPEX42)
13	I^2C error while communicating with the HOP (TDA9332H/N3)
14	I^2C error while communicating with the HDMI (SIL9011 CLU)
15	I^2C error while communicating with the Audio Demodulator (MSP3411G)
16	I^2C error while communicating with the ADC RGB (AD9985KST-110)
19	I^2C error while communicating with the SDRAM IC (K4D263238F)

Service Tips:
- In case of non-intermittent faults, clear the error buffer before you begin the repair. This to ensure that old error codes are no longer present. Before clearing the buffer, write down the content, as this history can give you significant information.
- If possible, check the entire contents of the error buffer. In some situations, an error code is only the result of another error code and not the actual cause (e.g., a fault in the protection detection circuitry can also lead to a protection).

5.6 The Blinking LED Procedure

5.6.1 Introduction

Via this procedure, you can make the contents of the error buffer visible via the front LED. This is especially useful for fault finding, when there is no picture.

When the SDM is activated, the front LED will show (by blinking) the contents of the error-buffer. Error-codes > 10 are shown as follows:
1. A long blink of 750 ms (which is an indication of the decimal digit),
2. A pause of 1500 ms,
3. “n” short blinks (where “n” = 1 - 9),
4. When all the error-codes are displayed, the sequence finishes with a LED blink of 3000 ms,
5. The sequence starts again.

Example: Error 12 9 6 0 0.
After activation of the SDM, the front LED will show:
1. 1 long blink of 750 ms (which is an indication of the decimal digit) followed by a pause of 1500 ms,
2. 2 short blinks of 250 ms, followed by a pause of 3000 ms,
3. 9 short blinks of 250 ms, followed by a pause of 3000 ms,
4. 6 short blinks of 250 ms, followed by a pause of 3000 ms,
5. 1 long blink of 3000 ms to finish the sequence,
6. The sequence starts again.

5.6.2 How to Activate

Use one of the following methods:
- Activate the SDM (only by shorting the soldering pad indicated in Figure “SDM Service contact” on the first page of this chapter to mass). The blinking front LED will show the entire contents of the error buffer (this works in “normal operation” mode and in “protection” mode). In order to avoid confusion with RC5 signal reception blinking, this LED blinking procedure is terminated when an RC5 command is received.
- Transmit the commands “MUTE”, “**06250x**”, and “OK” with a normal RC (where “x” is the position in the error buffer that has to be displayed). With x= 1, the last detected error is shown, x= 2 the second last error, etc.... When x= 0, all errors are shown.
- “DIAGNOSE X” with the DST (where “x” is the position in the error buffer that has to be displayed). With x= 1, the last detected error is shown, x= 2 the second last error, etc.... When x= 0, all errors are shown.

Note: It can take some seconds before the blinking LED starts.

5.7 Software Downloading

In this chassis, you can **upgrade** the software via the IAP Tool (In Application Programming). You can find more information on this in the paragraph “Service Tools” in this chapter.

5.8 Fault Finding and Repair Tips

Notes:
- It is assumed that the components are mounted correctly with correct values and no bad solder joints.
- Before any fault finding actions, check if the correct options are set.

5.8.1 NVM Editor

In some cases, it can be handy if one directly can change the NVM contents. This can be done with the “NVM Editor” in SAM mode. In the next table, the default NVM values are given.

Table 5-3 NVM default values

Item	Address (dec)	Default values (hex)		Default values (dec)	
		29PT9521/12	32PW9551/12	29PT9521/12	32PW9551/12
EW (EW Width)	19	15	1A	21	26
PW (EW Parabola Width)	20	19	19	25	25
HS (Horizontal Shift)	21	20	20	32	32
HP (Horizontal Parallelogram)	22	07	07	07	07
HB (Horizontal Bow)	23	07	07	07	07
UCP (EW Upper Corner Parabola)	24	20	20	32	32
LCP (EW Lower Corner Parabola)	25	20	20	32	32
TC (EW Trapezium)	26	1D	1D	29	29
VS (Vertical Slope)	27	27	27	39	39
VA (Vertical Amplitude)	28	20	20	32	32
SC (S-Correction)	29	15	15	21	21
VSH (Vertical Shift)	30	20	20	32	32
VX (Vertical Zoom)	31	19	19	25	25
VSL (Vertical Scroll)	32	20	20	32	32
HOP EW EHT Compensation	33	20	20	32	32
BLOR (Black Level Offset - Red)	34	08	08	08	08
BLOG (Black Level Offset - Green)	35	08	08	08	08
AGC (AGC Takeover)	36	0E	0E	14	14
OIF (IF-PLL Offset)	37	20	20	32	32
AGC10	38	01	01	01	01
H60 (60 Hz Horizontal Shift)	39	00	00	00	00
60 Hz Vertical Amplitude	42	04	04	04	04
YD & CL	43	04	07	04	07
RGB Brightness	46	28	28	40	40
NVM_TABLE_VERSION	60	64	64	100	100
OPTION_TABLE_VERSION	61	3C	3C	60	60
TXT Brightness	64	14	14	20	20
V60 offset (60Hz Vertical Amplitude)	66	04	04	04	04
CRYSTALALIGN	208	00	00	00	00
VIDEO PP	264	23	23	35	35
Last Colour	265	36	36	54	54
Last Contrast	266	64	64	100	100
Last Sharpness	267	05	05	05	05
Last Hue	268	32	32	50	50
Last Colour Temp	269	00	00	00	00
White-D Cool Red	294	00	00	00	00
White-D Cool Green	295	00	00	00	00
White-D Cool Blue	296	04	04	04	04
White-D Normal Red	297	25	25	37	37
White-D Normal Green	298	20	20	32	32
White-D Normal Blue	299	28	28	40	40
White-D Warm Red	300	08	08	08	08
White-D Warm Green	301	00	00	00	00
White-D Warm Blue	302	ED	ED	237	237
Audio Last Smart	342	03	03	03	03
Last Volume	343	23	23	35	35
Last Balance	344	0A	0A	10	10
Last Treble	345	00	00	00	00
Last Bass	346	00	00	00	00

Note:

- When aligning a TV set, it is convenient to start with the default settings, and then to change them, if necessary, to customized values.
- If you suspect a defective TV set is programmed with the wrong settings or options, try to restore the set to its default settings or set the options to their virgin mode (the latter can also be done via the NVM Editor in the SAM menu, see chapter 8 and the table Option codes).
  If the remote control of a TV set is defective of missing, and you can not enter the CSM or SAM menu, it is always possible to return the TV to its virgin mode by simultaneously pressing the Volume+ and Volume- keys on the Top Control/Side I/O panel of the TV set.

5.8.2 SAM Menu Structure

The SAM Menu structure of the L06.1E AA is different from that of the ES1. Some of the menu items that were in the main menu of the ES1 are now in the submenu. The following table shows the structure of the SAM menu of the L06.1E AA.

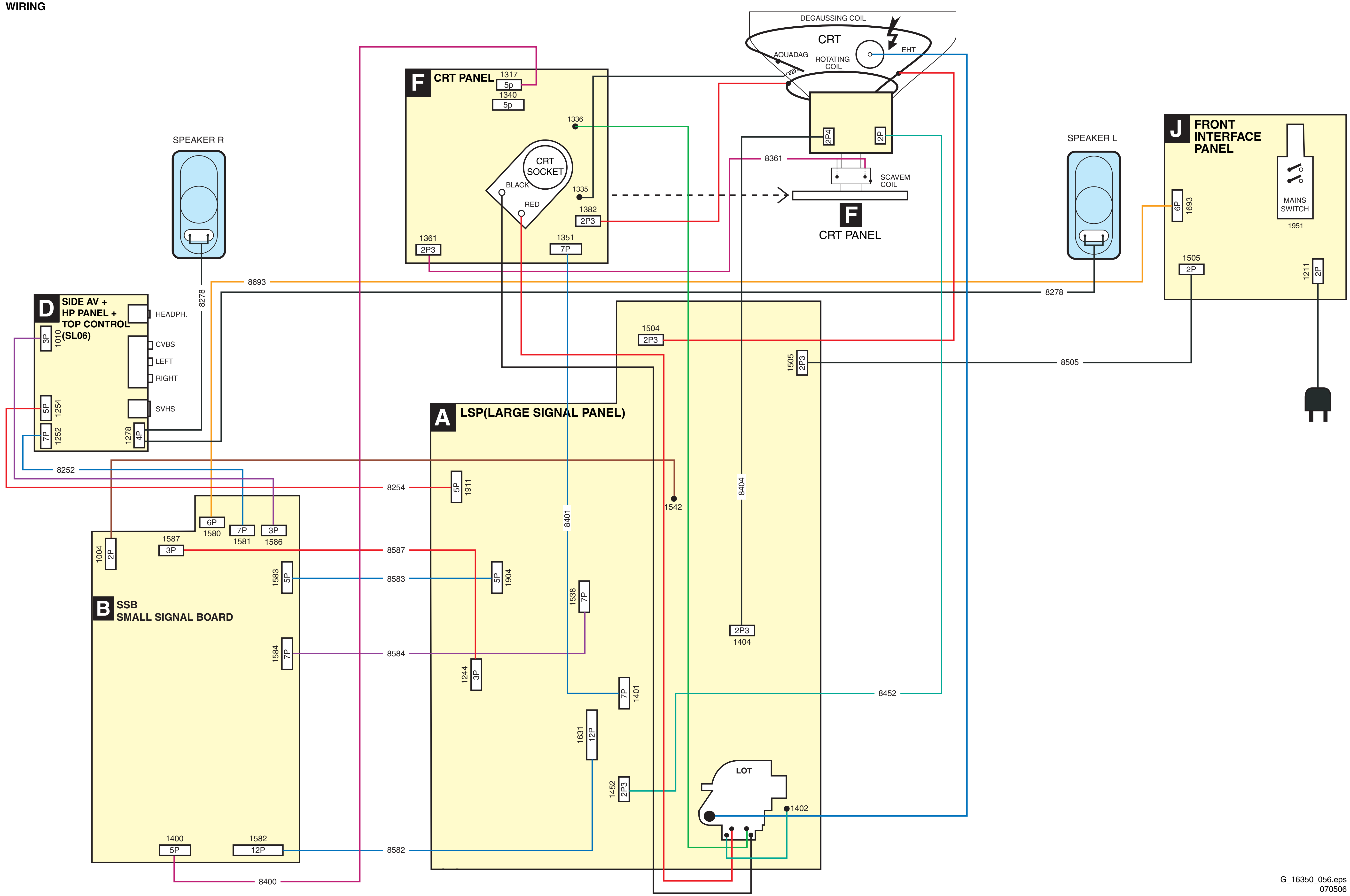
Table 5-4 SAM menu structure

SAM Main Menu	SAM Submenu level 1	SAM Submenu level 2	Example of SAM Submenu values / settings	Explanation of menu items
Clear			Yes	**Clear.** Erases the contents of the error buffer. Select the CLEAR menu item and press the CURSOR RIGHT key. The content of the error buffer is cleared.
Options	**OP1**			**Options.** Used to set the option bits. See “Options” in the Alignments section for a detailed description.
	OP2			
	OP3			
	OP4			
	OP5			
	OP6			
	OP7			
Tuner	**IFPLL**			**Tuner.** Used to align the tuner. See “Tuner” in the Alignments section for a detailed description.
	AGC			
RGB Align	**AKB**		Off / On	**RGB Align** > **White Tone.** Used to align the white tone. See “RGB Align > White Tone” in the Alignments section for a detailed description.
	White Tone	Cool		
		Normal		
		Warm		
		BlackL Offset R		
		BlackL Offset G		
	CL		7	
Geometry	**Horizontal**	HP	8	**Geometry.** Used to align the Geometry. See “Geometry” in the Alignments section for a detailed description.
		HB	9	
		HSH	33	
		EWW	23	
		EWP	26	
		EWT	31	
		UCP	41	
		LCP	34	
	Vertical	SBL		**Note:** If the TV set is switched to 50 Hz/double lines (i.e. not Pixel Plus/100 Hz) only “VS” is shown in the menu.
		VS	42	
		VSH	26	
		VAM	25	
		VSC	21	
Audio	**AF-M**		250	**Audio.** No audio alignment is necessary for this television set.
	A2-T		400	
	AT		2	
NVM Editor	**ADR**		0x0001 1	**NVM Editor.** Can be used to change the NVM data in the television set.
	VAL		0x0000 0	
	Store			
Compair	**Compair**			**ComPaIr.** In other TV sets, this menu item can be used to switch the television to “In System Programming” (ISP) mode, for software uploading via ComPair. In the L061E AA, however, a different system is used: IAP. **Caution:** When this mode is selected without IAP connected, the TV will be blocked. Remove the AC power to reset the TV.
	IAP			**IAP.** This tool is used instead of Compair (Compair is not implemented in this TV set).

6. Block Diagrams, Testpoint Overviews, and Waveforms

Wiring Diagram

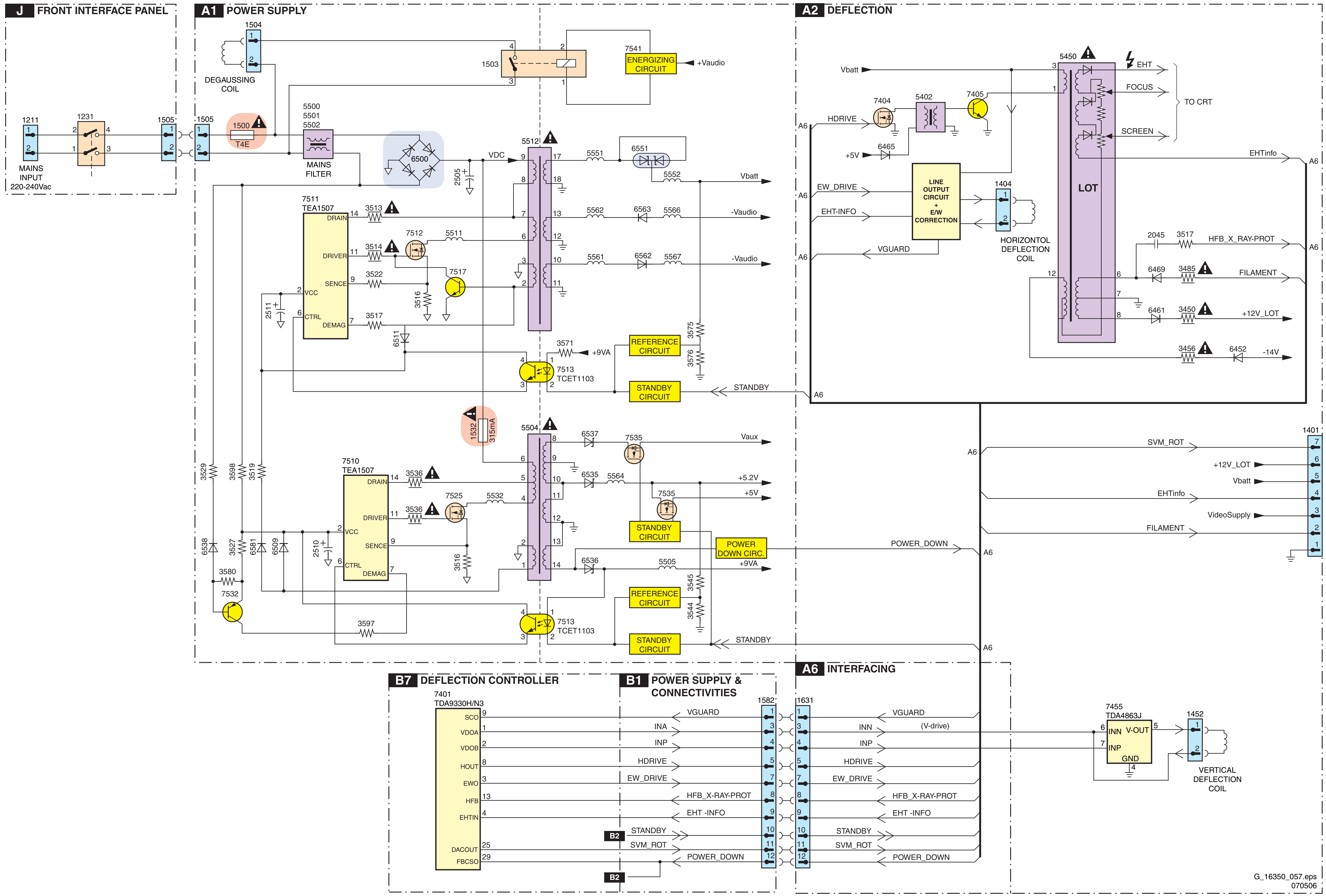
WIRING



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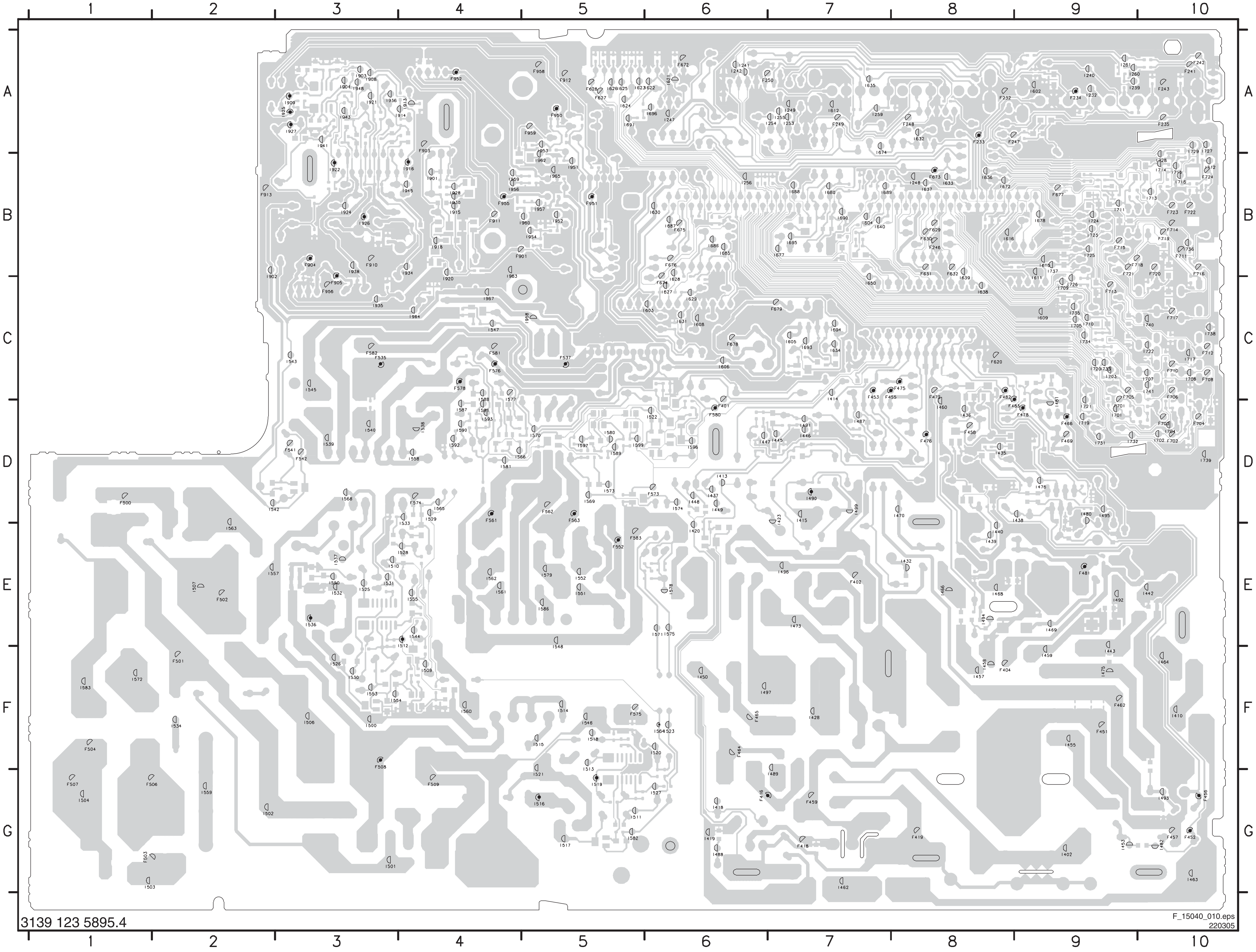
Block Diagram LSP Supply and Deflection

SUPPLY AND DEFLECTION

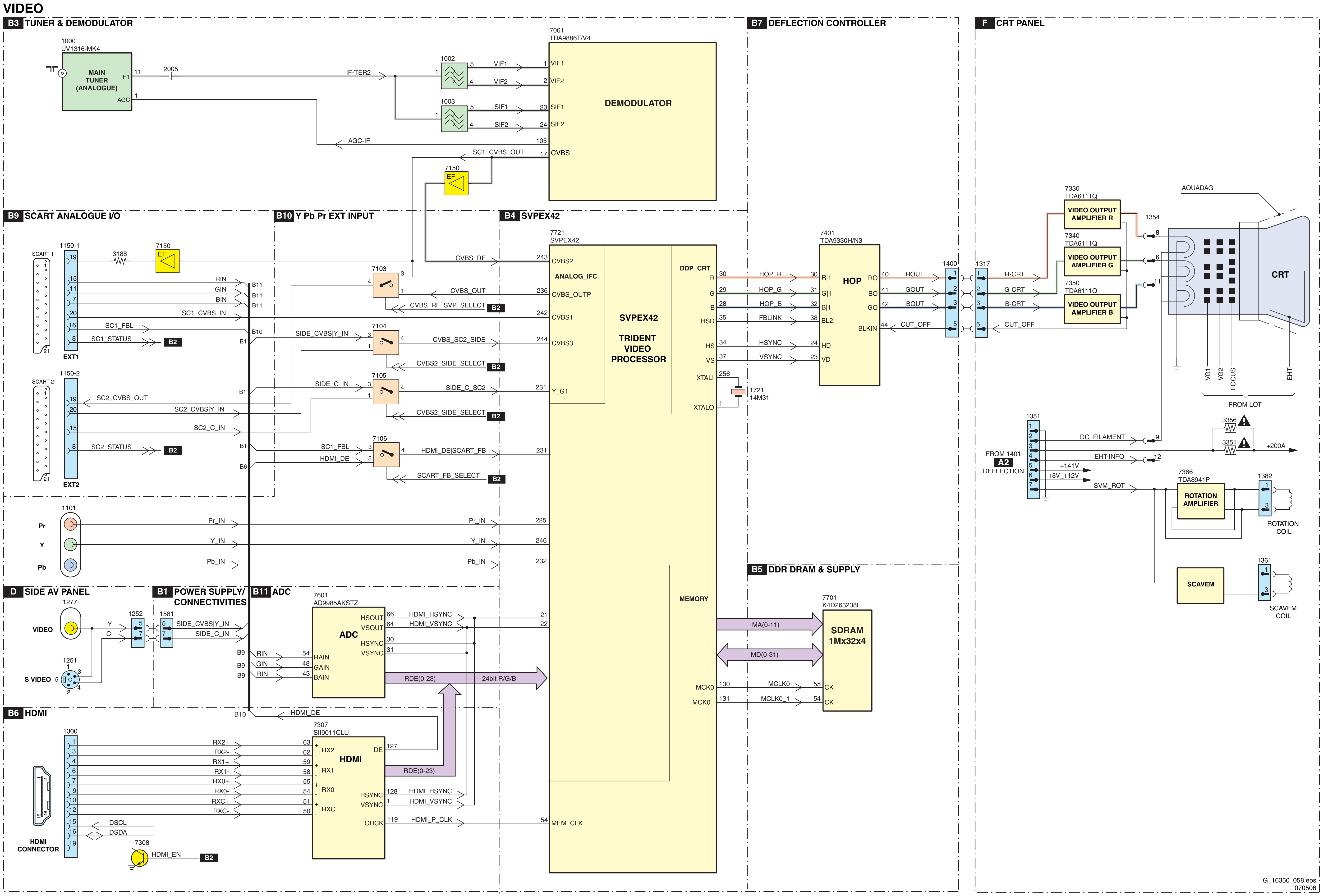


Testpoint Overview LSP

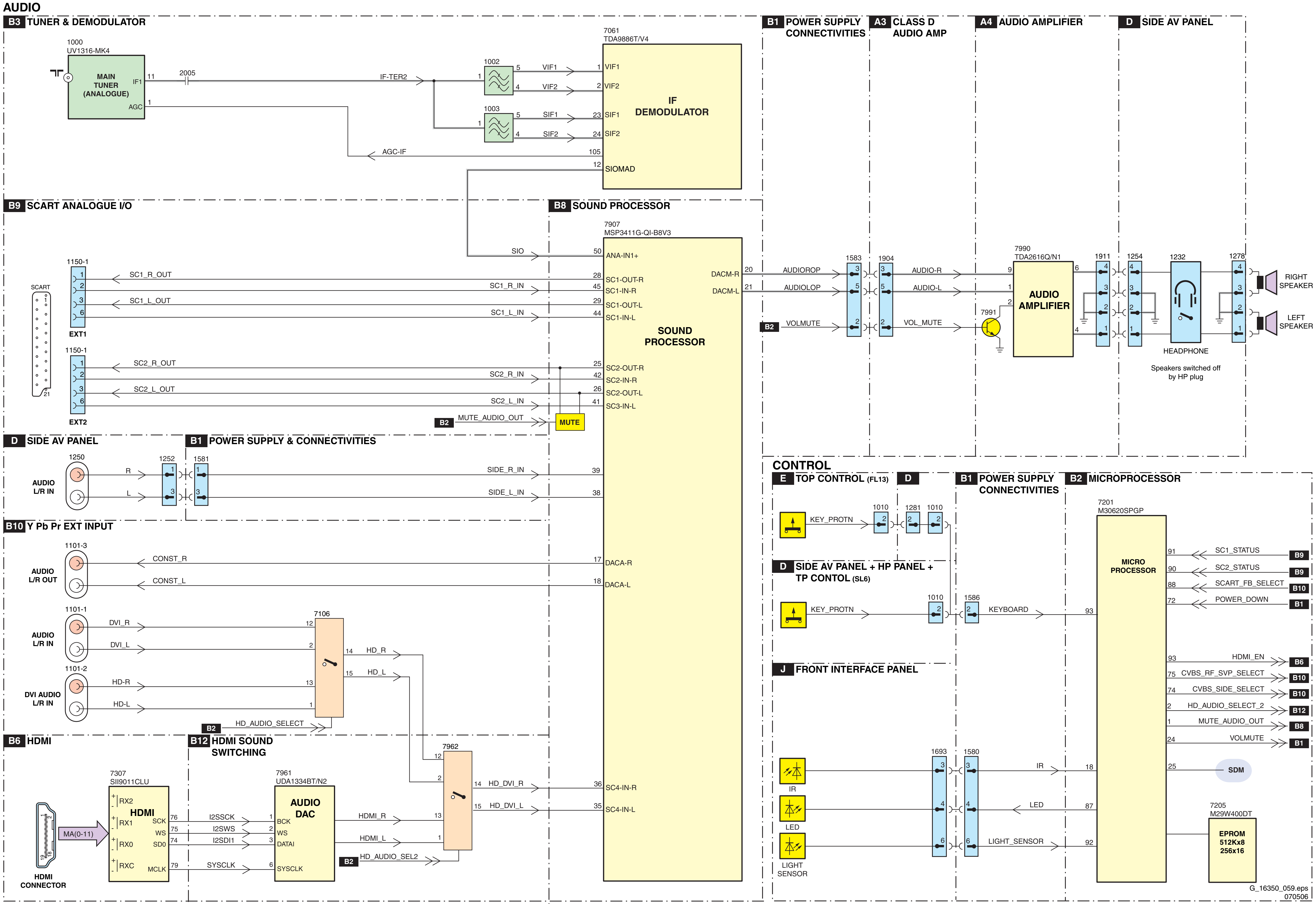
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F233	A8
F234	A9
F235	A10
F241	A10
F242	A10
F243	A10
F246	B8
F247	A8
F248	A8
F249	A7
F250	A6
F401	D6
F402	E7
F404	F8
F416	G6
F418	G7
F419	G8
F451	F9
F452	G10
F453	C7
F455	C7
F456	G10
F457	G10
F458	D8
F459	G7
F462	F9
F464	F6
F465	F6
F466	D9
F469	D9
F472	C8
F475	C8
F476	D8
F478	D9
F481	E9
F482	C8
F483	D8
F500	D1
F501	F2
F502	E2
F503	G1
F504	F1
F506	G1
F507	G1
F508	F3
F509	G4
F535	C3
F537	C5
F541	D3
F542	D3
F552	E5
F561	D4
F562	D5
F563	D5
F573	D6
F574	D4
F575	F5
F576	C4
F578	C4
F580	D6
F581	C4
F582	C3
F583	E5
F620	C8
F627	A5
F628	A5
F629	B8
F630	B8
F631	B8
F632	B8
F672	A6
F673	B8
F674	C6
F675	B6
F676	B6
F677	B9
F678	C6
F679	C7
F701	D9
F702	D10
F703	D10
F704	D10
F705	C9
F706	C10
F708	C10
F710	C10
F711	B10
F712	C10
F713	C9
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F715	B9
F716	B10
F717	C10
F718	B9
F719	B10
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F723	B10
F724	B10
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F903	A4
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F905	C3
F910	B3
F911	B4
F912	A5
F913	B2
F950	A5
F951	B5
F952	A4
F955	B4
F956	C3
F958	A5
F959	A5
I232	A9
I239	A9
I240	A9
I241	A6
I242	A6
I247	A6
I248	B8
I249	A7
I253	A7
I254	A7
I255	A7
I256	B6
I259	A7
I260	A9
I261	A9
I402	G9
I410	F10
I413	D6
I414	C7
I415	D7
I418	G6
I419	G6
I420	E6
I423	D7
I428	F7
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I442	E10
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I446	D7
I447	D6
I448	D6
I449	D6
I450	F6
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I455	F9
I457	F8
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I463	G10
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I466	E8
I468	E8
I469	E9
I470	D8
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I476	D9
I480	D9
I481	D9
I482	G10
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I488	G6
I489	G7
I490	D7
I491	D7
I492	E9
I493	G10
I494	E8
I495	D9
I496	E7
I497	F6
I499	D7
I500	F3
I501	G3
I502	G2
I503	G1
I504	G1
I506	F3
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I509	F4
I510	E3
I511	G5
I512	E4
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I515	F5
I516	G5
I517	G5
I518	F5
I519	G5
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I522	D6
I523	F6
I525	E3
I526	F3
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I529	D4
I530	F3
I531	E3
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I533	E4
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I537	E3
I538	D4
I539	D3
I540	D3
I542	D2
I543	C3
I544	E4
I545	C3
I546	F5
I547	C4
I548	F5
I550	E3
I551	E5
I552	E5
I553	F3
I554	F3
I555	E4
I557	E2
I558	D4
I559	G2
I560	F4
I561	E4
I562	E4
I563	E2
I564	F6
I565	D4
I566	D4
I568	D3
I569	D5
I570	D5
I571	E6
I572	F1
I573	D5
I574	D6
I575	E6
I577	C4
I578	E6
I579	E5
I580	D5
I581	D4
I582	G5
I583	F1
I586	E5
I587	D4
I588	C4
I589	D5
I590	D4
I591	D4
I592	D4
I593	D4
I596	D6
I597	D5
I599	D5
I602	A9
I603	C6
I604	B7
I605	C7
I606	C6
I608	C6
I609	C9
I610	B9
I611	C9
I612	A7
I616	B8
I621	A6
I622	A6
I623	A5
I624	A5
I625	A5
I626	A5
I627	C6
I628	C6
I629	C6
I630	B6
I631	C6
I632	A8
I633	B8
I634	C7
I635	A7
I636	B8
I637	B8
I638	C8
I639	C8
I640	B7
I650	C7
I672	B8
I674	A7
I677	B7
I678	B9
I680	B7
I685	B6
I686	B6
I687	B6
I688	B7
I689	B7
I690	B7
I691	A5
I693	C7
I694	C7
I695	B7
I696	A6
I701	D9
I702	D10
I703	C9
I704	D10
I705	C9
I707	C10
I708	C10
I709	C9
I710	C9
I711	B9
I712	B10
I713	B10
I714	B10
I715	B10
I716	B10
I717	C10
I719	D9
I720	C9
I721	D9
I722	C10
I723	B9
I724	B9
I725	B9
I726	C9
I727	A10
I728	B10
I729	A10
I731	D9
I732	D9
I733	C9
I734	C9
I735	C9
I736	B10
I737	B9
I738	C10
I739	D10
I740	C10
I741	C10
I901	B4
I902	C2
I903	A3
I904	A3
I908	A3
I909	A3
I913	A4
I914	A4
I915	B4
I916	B4
I918	B4
I920	C4
I921	A3
I922	B3
I924	B3
I925	A3
I926	B3
I927	A3
I928	B4
I930	B4
I934	B4
I935	C3
I936	A3
I938	B3
I941	A3
I943	A3
I945	B4
I948	A3
I951	B5
I952	B5
I953	A5
I954	B5
I956	B4
I957	B5
I958	C5
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I962	B5
I963	B4
I964	C4
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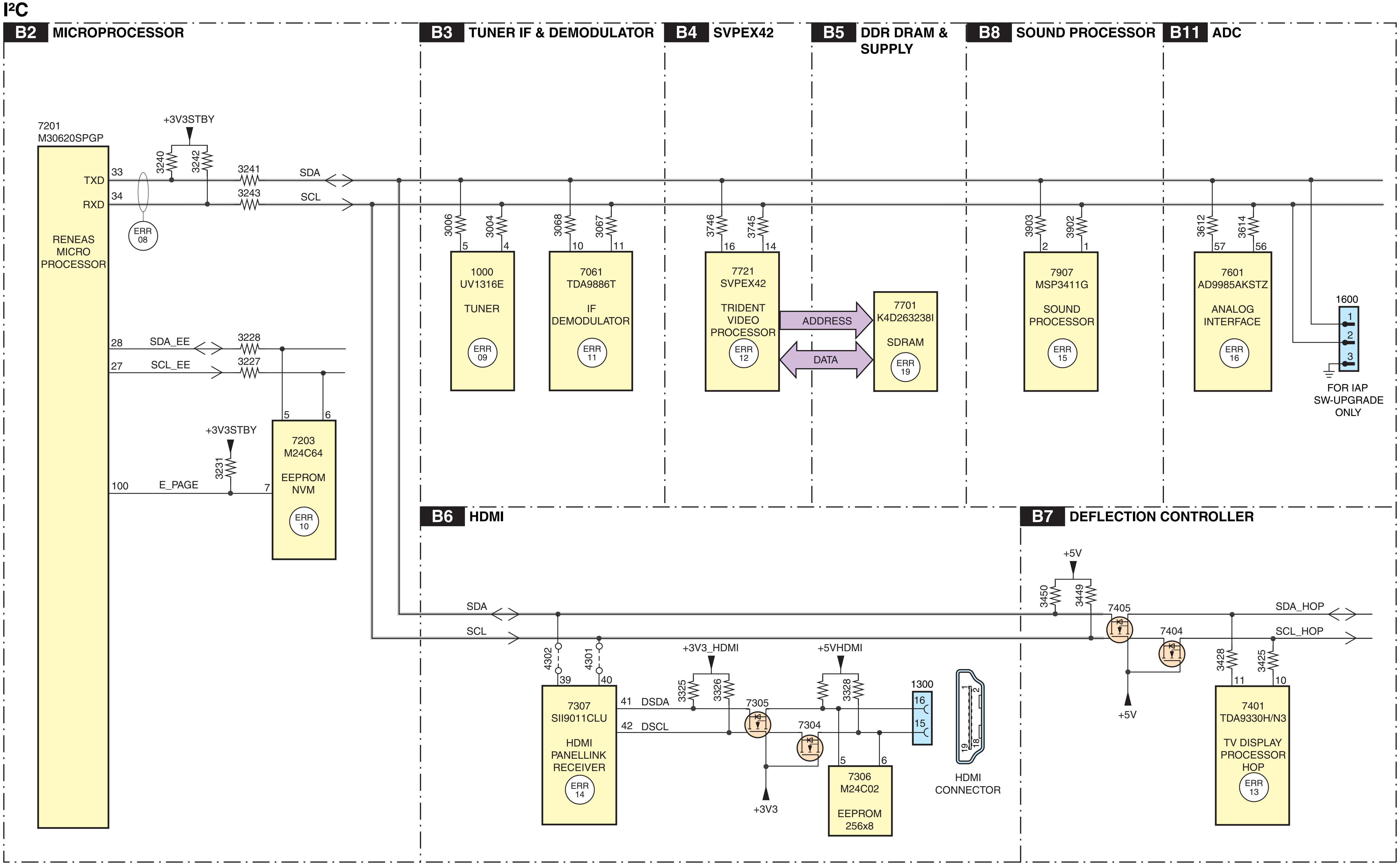
Block Diagram Video



Block Diagram Audio

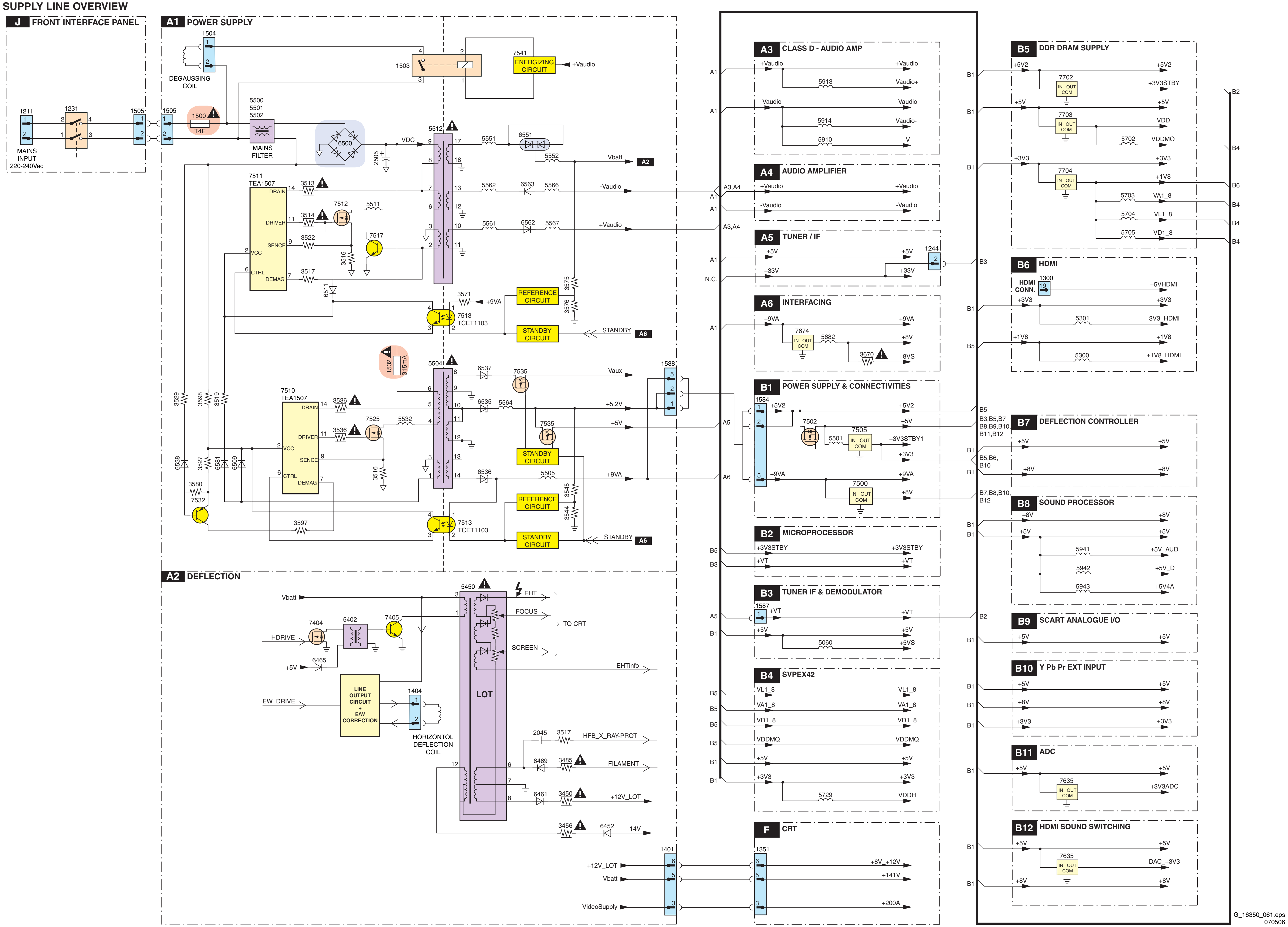


I2C Overview



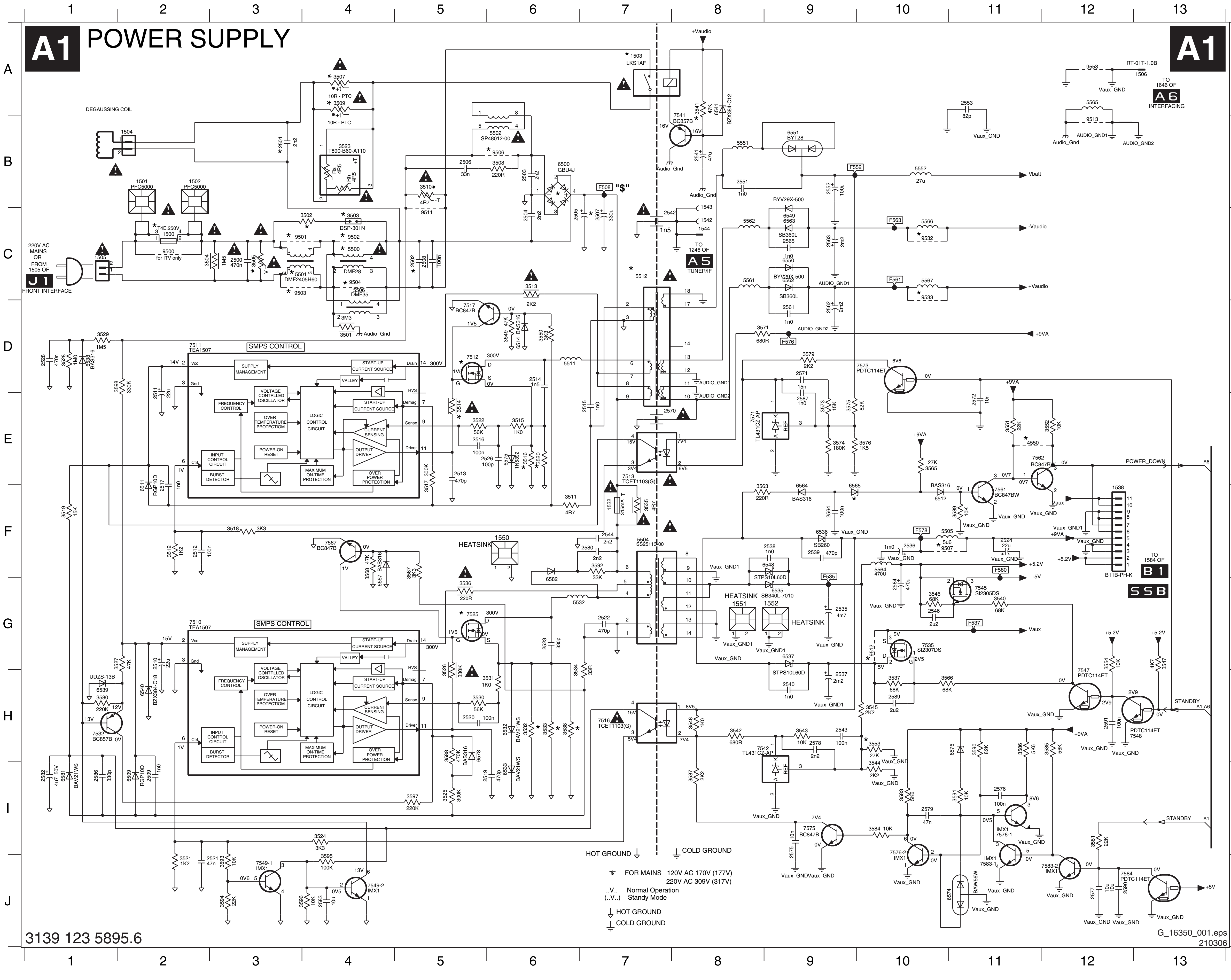
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Supply Lines Overview



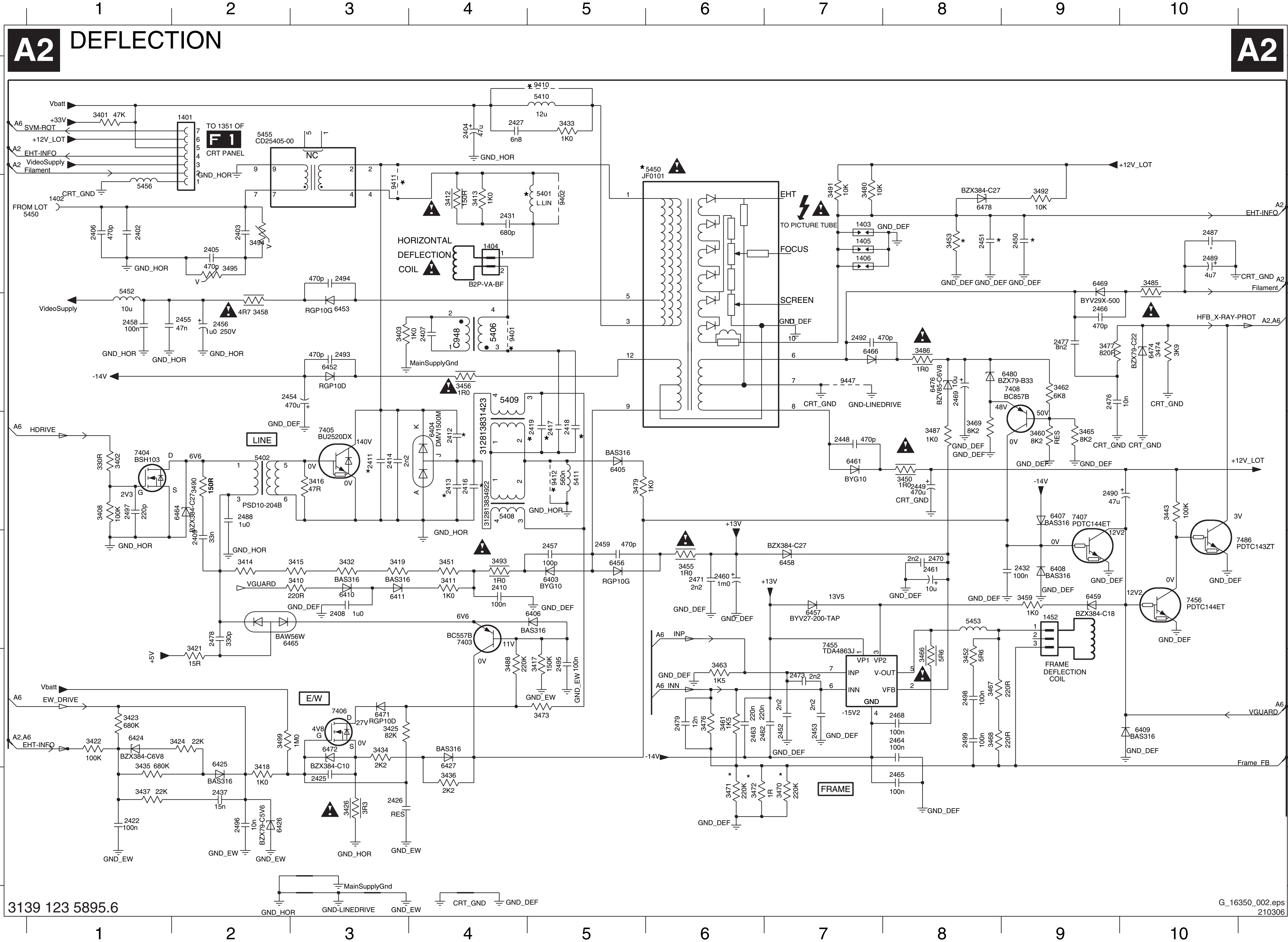
7. Circuit Diagrams and PWB Layouts

LSP: Power Supply



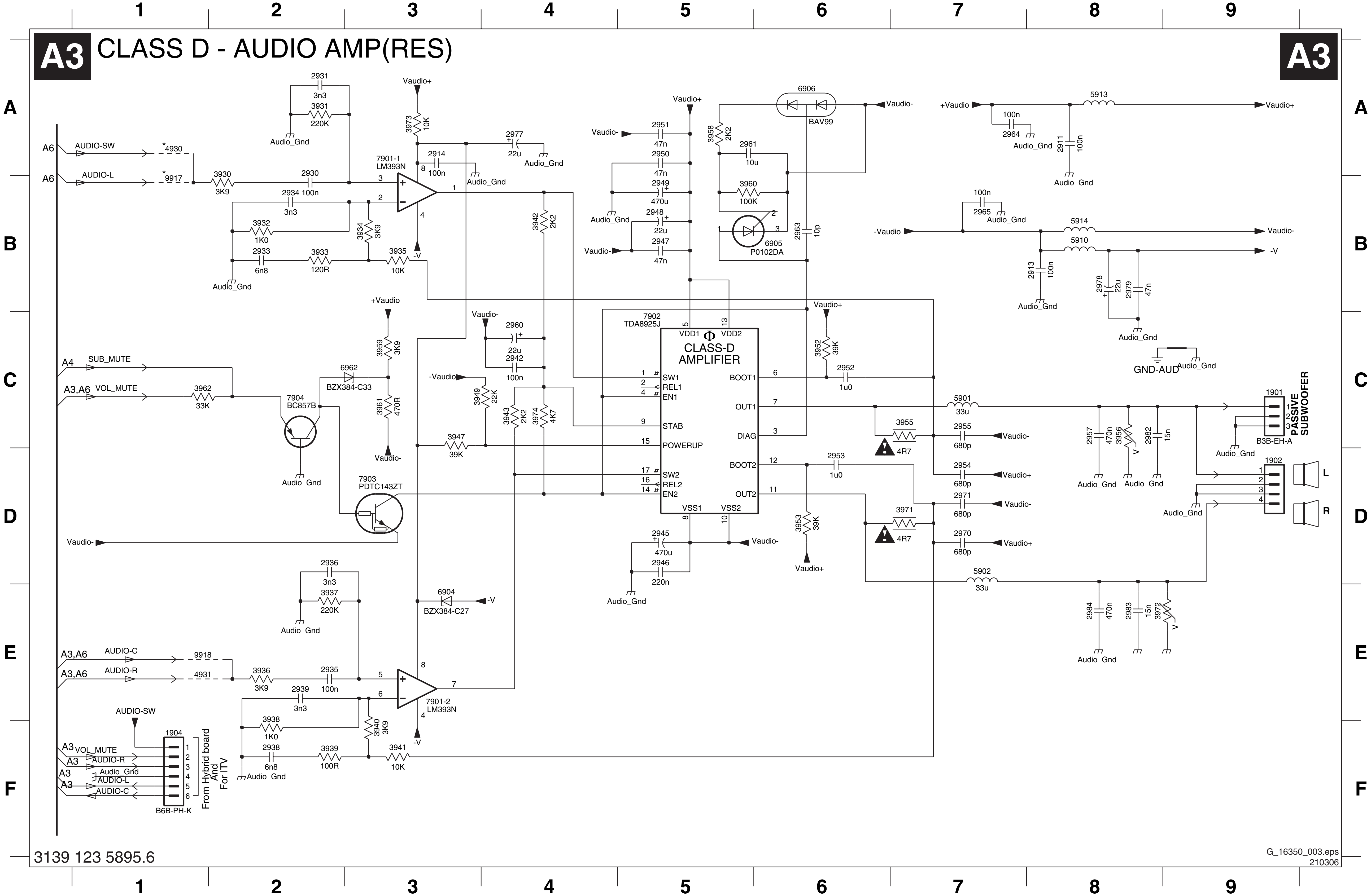
1500 C2	3545 H10	9507 F10
1501 B2	3546 G10	9511 C5
1502 B2	3547 G13	9512 G10
1503 A7	3548 H8	9513 B12
1504 B2	3549 D6	9532 C10
1505 C1	3550 D6	9533 C10
1506 A13	3551 E11	9553 A12
1532 F7	3552 E12	F508 B7
1538 F12	3553 H10	F535 G9
1542 C8	3554 G12	F537 G11
1543 B8	3563 F8	F552 B9
1544 C8	3565 E10	F561 C10
1550 F6	3566 H10	F563 C10
1551 G8	3567 F5	F576 D9
1552 G8	3568 F4	F578 F10
2500 C3	3571 D8	F580 F11
2501 B3	3573 E9	
2502 C5	3574 E9	
2503 B6	3575 E9	
2504 C6	3576 E10	
2505 C6	3579 D9	
2506 B5	3580 H1	
2507 C7	3581 I12	
2508 C5	3583 I10	
2509 I2	3584 I10	
2510 G2	3585 H12	
2511 E2	3586 H11	
2512 F2	3587 I8	
2513 E5	3588 H5	
2514 D6	3589 F11	
2515 E7	3590 H11	
2516 E5	3591 I11	
2517 F2	3592 F7	
2519 I6	3593 J3	
2520 H5	3594 J3	
2521 J3	3595 J4	
2522 G7	3596 J4	
2523 G6	3597 I5	
2524 F11	3598 D2	
2526 E6	4550 E11	
2528 D1	5500 C4	
2535 G9	5501 C3	
2536 F10	5502 B6	
2537 H9	5504 F7	
2538 F9	5505 F10	
2539 F9	5506 C4	
2540 H9	5511 D6	
2541 B8	5512 C7	
2542 C7	5532 G6	
2543 H9	5551 B8	
2544 F7	5552 B10	
2546 G10	5561 C8	
2551 B8	5562 C8	
2552 B9	5564 F10	
2553 A11	5565 A12	
2561 D9	5566 C10	
2562 D9	5567 C10	
2563 C9	6500 B6	
2564 F9	6509 I2	
2565 C9	6511 F2	
2570 E7	6512 F10	
2571 D9	6514 D6	
2572 E11	6532 H6	
2575 I9	6533 I6	
2576 I11	6535 G9	
2577 J12	6536 F9	
2578 H9	6537 G9	
2579 I10	6538 D1	
2580 F7	6539 H1	
2582 I1	6540 H2	
2583 J4	6541 A8	
2584 G10	6548 F9	
2586 I1	6549 C9	
2587 E9	6550 C9	
2589 H10	6551 B9	
2590 J12	6562 C9	
2591 H12	6563 C9	
3501 D4	6564 F9	
3502 C4	6565 F9	
3503 C4	6567 G4	
3504 C2	6574 J11	
3505 C3	6575 E6	
3507 A4	6576 H11	
3508 B6	6578 H5	
3509 A4	6581 I1	
3510 B5	6582 F6	
3511 F6	7510 G2	
3512 F2	7511 D2	
3513 C6	7512 D5	
3514 E5	7513 E7	
3515 E6	7516 H7	
3516 E6	7517 D5	
3517 F5	7525 G5	
3518 F3	7532 H1	
3519 F1	7535 G10	
3520 E6	7541 B8	
3521 J2	7542 H8	
3522 E5	7545 G11	
3523 B4	7547 G12	
3524 I4	7548 H13	
3525 I5	7549-1 J3	
3526 H5	7549-2 J4	
3527 G2	7561 F11	
3528 D1	7562 E11	
3529 D1	7567 F4	
3530 H5	7571 E8	
3531 H6	7573 D10	
3532 H6	7575 I9	
3533 H6	7576-1 I11	
3534 H6	7576-2 I10	
3535 F7	7583-1 J11	
3536 G5	7583-2 J12	
3537 H10	7584 J12	
3538 H6	9500 C2	
3540 G11	9501 C3	
3541 A8	9502 C4	
3542 H8	9503 C3	
3543 H9	9504 C4	
3544 I10	9506 B6	

LSP: Deflection



1401 A2	3426 G3	7406 F3
1402 B1	3432 E3	7407 D9
1403 B7	3433 A5	7408 C9
1404 B4	3434 F3	7455 E7
1405 B7	3435 G1	7456 E10
1406 B7	3436 G4	7486 E10
1452 E9	3437 G1	9401 C4
2402 B1	3443 D10	9402 B5
2403 B2	3450 D8	9410 A5
2404 A4	3451 E4	9411 B3
2405 B2	3452 F8	9412 D5
2406 B1	3453 B8	9447 C7
2407 C4	3455 E6	
2408 E3	3456 C4	
2409 E2	3458 C2	
2410 E4	3459 E9	
2411 D3	3460 D9	
2412 D4	3461 F6	
2413 D4	3462 C9	
2414 D3	3463 F6	
2416 D4	3465 D9	
2417 D5	3466 F8	
2418 D5	3467 F8	
2419 D5	3468 F8	
2422 G1	3469 D8	
2425 G3	3470 G7	
2426 G3	3471 G6	
2427 A4	3472 G6	
2431 B4	3473 F5	
2432 E9	3474 C10	
2437 G2	3476 F6	
2448 D7	3477 C9	
2449 D8	3479 D5	
2450 B9	3480 B7	
2451 B8	3485 B10	
2452 F7	3486 C8	
2453 F7	3487 D8	
2454 C2	3488 F4	
2455 C2	3490 D2	
2456 C2	3491 B7	
2457 E5	3492 B9	
2458 C1	3493 E4	
2459 E5	3494 B2	
2460 E6	3495 B2	
2461 E8	3499 F2	
2462 F7	5401 B5	
2463 F6	5402 D2	
2464 F8	5406 C4	
2465 G8	5408 D4	
2466 C9	5409 C4	
2468 F8	5410 A5	
2469 C8	5411 D5	
2470 E8	5450 A6	
2471 E6	5452 C1	
2473 F7	5453 E8	
2476 C9	5455 A2	
2477 C9	5456 B1	
2478 E2	6403 E5	
2479 F6	6404 D4	
2487 B10	6405 D5	
2488 D2	6406 E5	
2489 B10	6407 D9	
2490 D9	6408 E9	
2492 C7	6409 F10	
2493 C3	6410 E3	
2494 B3	6411 E3	
2495 F5	6424 F1	
2496 G2	6425 F2	
2497 D1	6426 G2	
2498 F8	6427 F4	
2499 F8	6452 C3	
3401 A1	6453 C3	
3402 D1	6456 E5	
3403 C3	6457 E7	
3408 D1	6458 E7	
3410 E3	6459 E9	
3411 E4	6461 D7	
3412 B4	6464 D2	
3413 B4	6465 E3	
3414 E2	6466 C7	
3415 E3	6469 B9	
3416 D3	6471 F3	
3417 F5	6472 F3	
3418 G2	6474 C10	
3419 E3	6476 C8	
3421 F2	6478 B8	
3422 F1	6480 C9	
3423 F1	7403 E4	
3424 F2	7404 D1	
3425 F3	7405 D3	

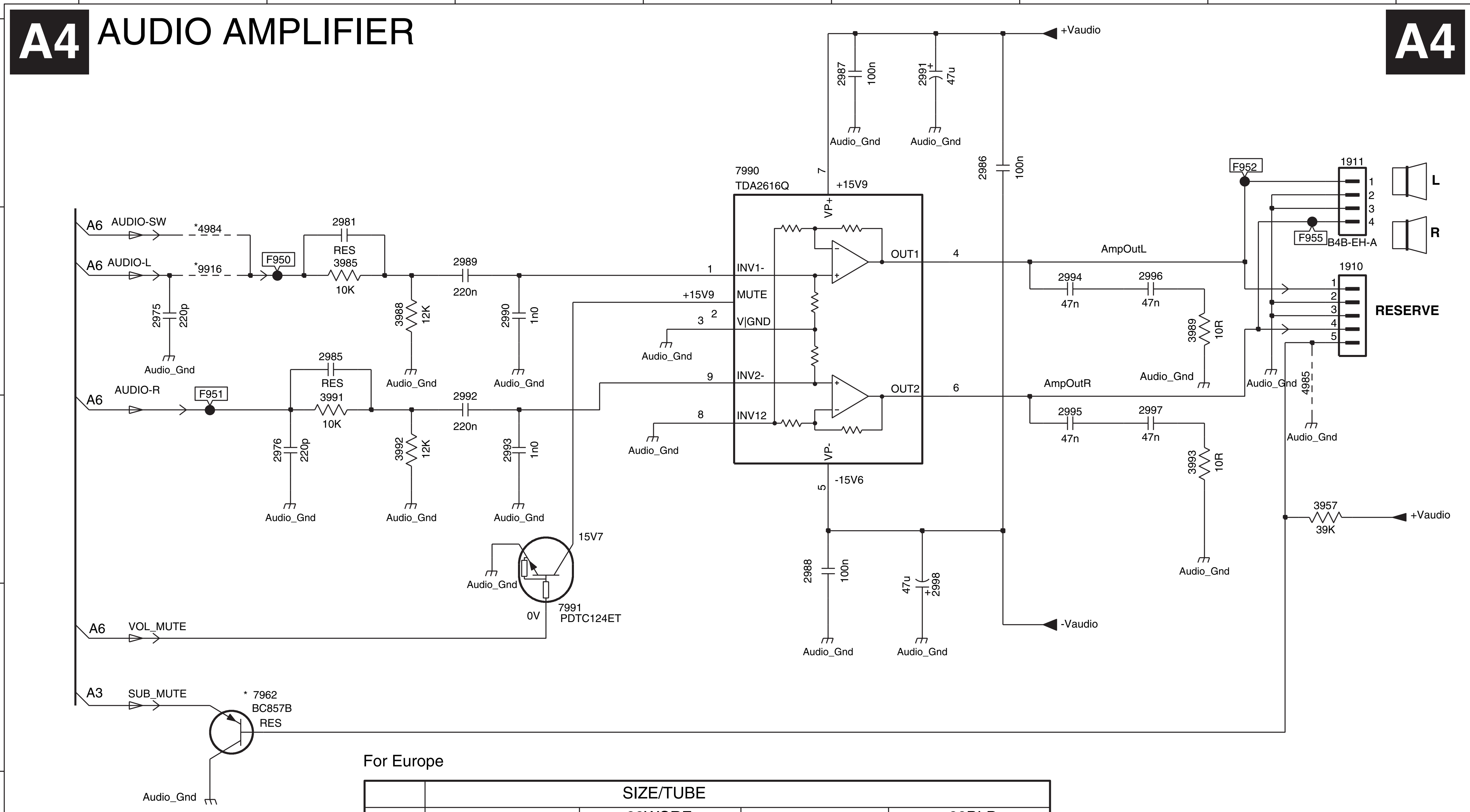
LSP: Class D Audio Amplifier (Res)



1901 C9	5913 A8
1902 D9	5914 B8
1904 F1	6904 E3
2911 A8	6905 B6
2913 B8	6906 A6
2914 A3	6962 C3
2930 B2	7901-1 A3
2931 A2	7901-2 E3
2933 B2	7902 C5
2934 B2	7903 D3
2935 E2	7904 C2
2936 D2	9917 B1
2938 F2	9918 E1
2939 E2	
2942 C4	
2945 D5	
2946 D5	
2947 B5	
2948 B5	
2949 B5	
2950 A5	
2951 A5	
2952 C6	
2953 D6	
2954 D7	
2955 C7	
2957 C8	
2960 C4	
2961 A5	
2963 B6	
2964 A7	
2965 B7	
2970 D7	
2971 D7	
2977 A4	
2978 B8	
2979 B8	
2982 C8	
2983 E8	
2984 E8	
3930 B2	
3931 A2	
3932 B2	
3933 B2	
3934 B3	
3935 B3	
3936 E2	
3937 E2	
3938 F2	
3939 F2	
3940 F3	
3941 F3	
3942 B4	
3943 C4	
3947 C3	
3949 C3	
3952 C6	
3953 D6	
3955 C7	
3956 C8	
3958 A5	
3959 C3	
3960 B5	
3961 C3	
3962 C1	
3971 D7	
3972 E8	
3973 A3	
3974 C4	
4930 A1	
4931 E1	
5901 C7	
5902 D7	
5910 B8	

LSP: Audio Amplifier

A4 AUDIO AMPLIFIER



For Europe

	SIZE/TUBE			
ITEM	29RF A68ERF182X044	28WSRF A66ERF172X044	32WSRF A66ERF172X044	28BLD A66EAK075X054
1910	NOT USED	NOT USED	NOT USED	NOT USED
1911	USED	USED	USED	USED
4984	NOT USED	NOT USED	NOT USED	NOT USED
7962	NOT USED	NOT USED	NOT USED	NOT USED
9916	USED	USED	USED	USED

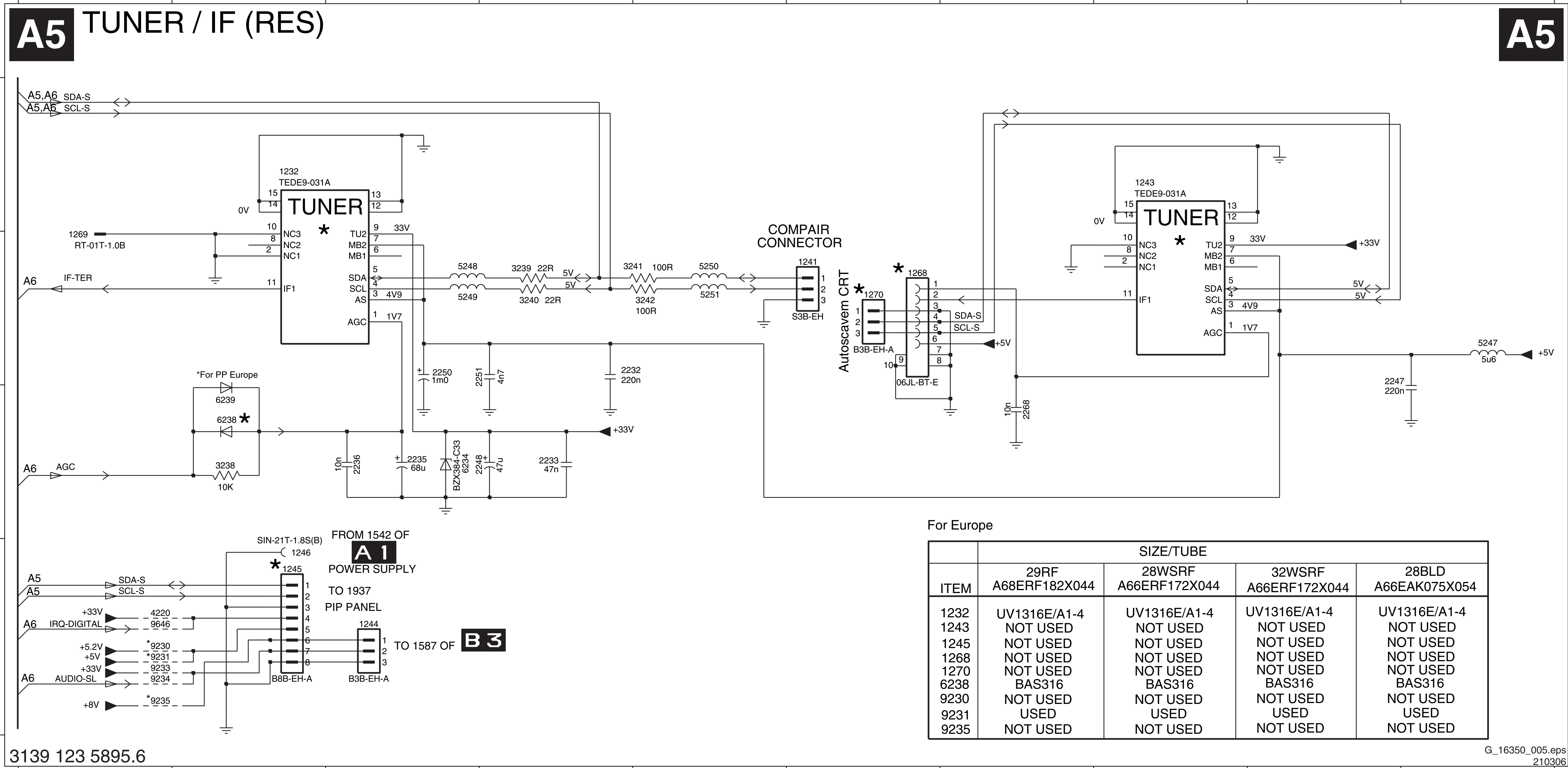
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G_16350_004.eps
210306

1910 B7
1911 A7
2975 B1
2976 C2
2981 B2
2985 B2
2986 A5
2987 A5
2988 C4
2989 B3
2990 B3
2991 A5
2992 C3
2993 C3
2994 B6
2995 C6
2996 B6
2997 C6
2998 D5
3957 C7
3985 B2
3988 B2
3989 B6
3991 C2
3992 C2
3993 C6
4984 B1
4985 B7
7962 D2
7990 A4
7991 D3
9916 B1
F950 B2
F951 C1
F952 A7
F955 B7

LSP: Tuner IF (Res)

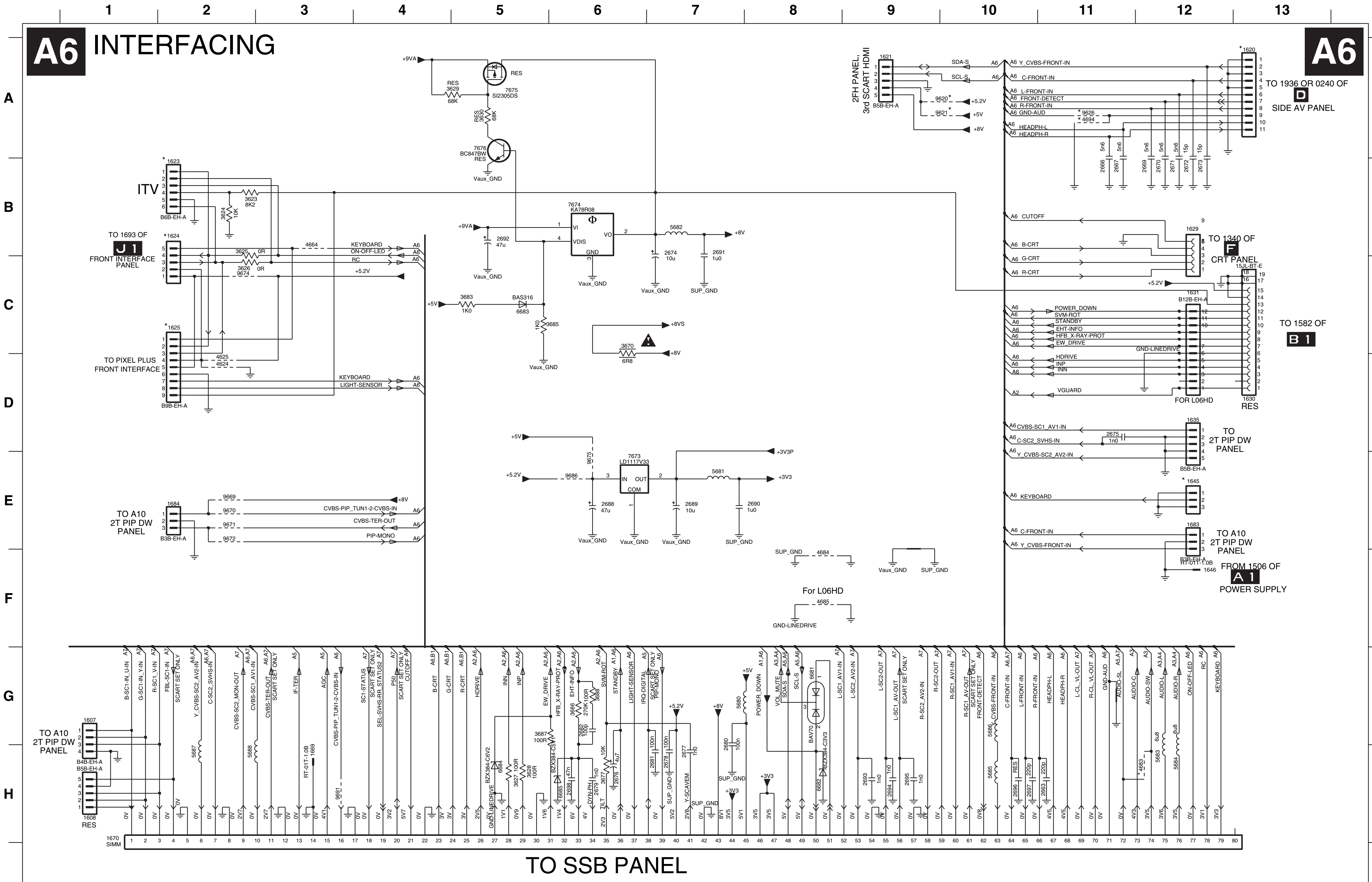
1232 A2 1241 B6 1243 A8 1244 D3 1245 D2 1246 D2 1268 B6 1269 B1 1270 B6 2232 B4 2233 C4 2235 C3 2236 C3 2247 B9 2248 C4 2250 B3 2251 B4 2268 C7 3238 C2 3239 B4 3240 B4 3241 B4 3242 B5 4220 D1 5247 B10 5248 B3 5249 B3 5250 B5 5251 B5 6234 C3 6238 C2 6239 C2 9230 D1 9231 D1 9233 D1 9234 D1 9235 D1 9646 D1



For Europe

	SIZE/TUBE			
ITEM	29RF A68ERF182X044	28WSRF A66ERF172X044	32WSRF A66ERF172X044	28BLD A66EAK075X054
1232	UV1316E/A1-4	UV1316E/A1-4	UV1316E/A1-4	UV1316E/A1-4
1243	NOT USED	NOT USED	NOT USED	NOT USED
1245	NOT USED	NOT USED	NOT USED	NOT USED
1268	NOT USED	NOT USED	NOT USED	NOT USED
1270	NOT USED	NOT USED	NOT USED	NOT USED
6238	BAS316	BAS316	BAS316	BAS316
9230	NOT USED	NOT USED	NOT USED	NOT USED
9231	USED	USED	USED	USED
9235	NOT USED	NOT USED	NOT USED	NOT USED

LSP: Interfacing



For Europe

ITEM	SIZE/TUBE 29RF A68ERF182X044	28WSRF A66ERF172X044	32WSRF A66ERF172X044	28BLD A66EAK075X054
1620	USED	USED	USED	USED
1623	NOT USED	NOT USED	NOT USED	NOT USED
1624	USED	USED	USED	USED
1625	NOT USED	NOT USED	NOT USED	NOT USED
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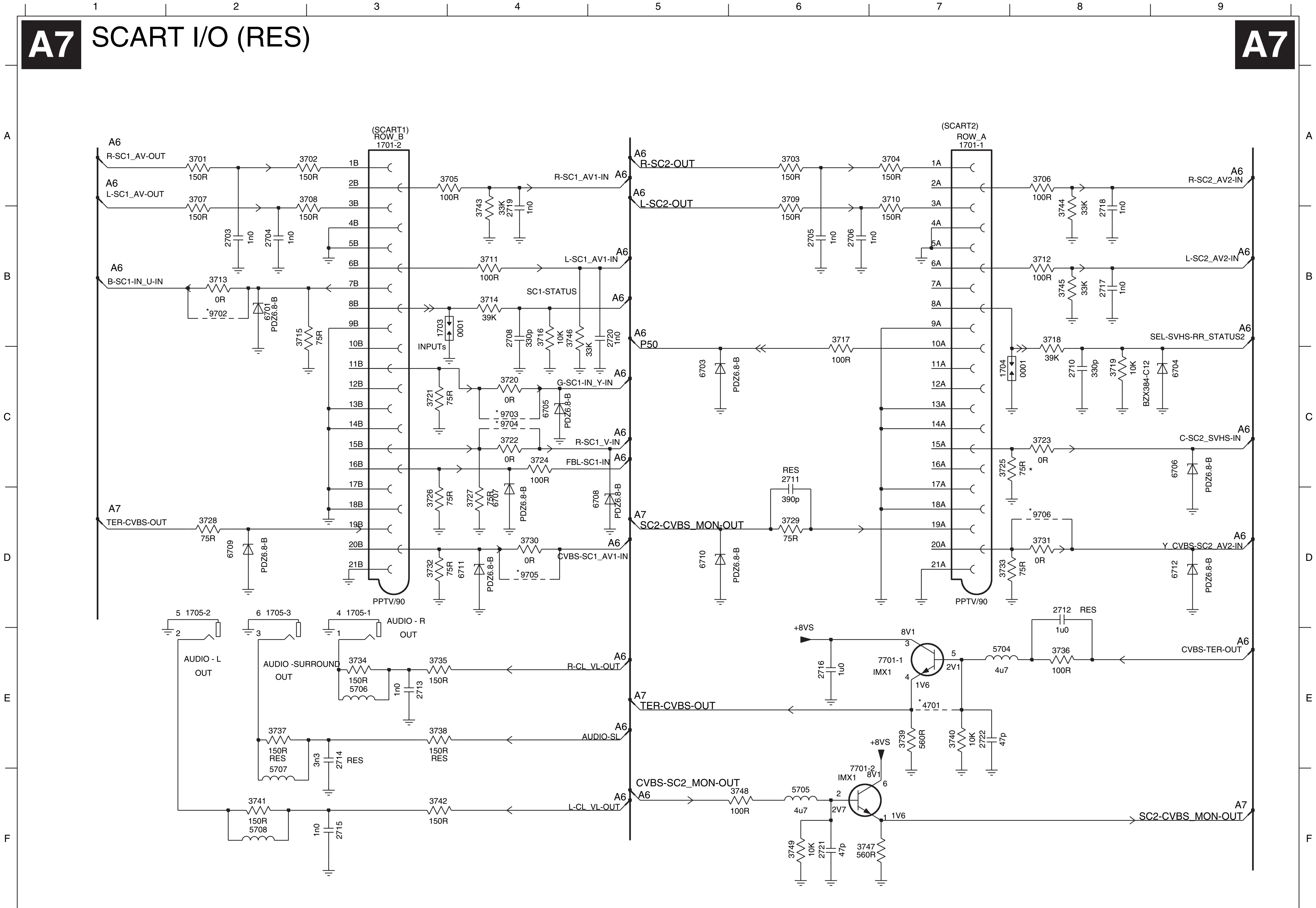
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2674 B7
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2676 H6
2677 H7
2678 H7
2679 H6
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2689 E7
2690 E8
2691 B7
2692 B5
2693 H9
2694 H9
2695 H9
2696 H10
2697 H10
2698 H6
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3624 B2
3625 B2
3626 C2
3627 H5
3628 H5
3629 A5
3630 A5
3670 C6
3677 H6
3683 C5
3685 C6
3686 G6
3687 G5
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5685 H10
5686 G10
5687 H2
5688 H2
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6682 H8
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6684 H5
6685 H6
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7675 A5
7676 A5
9620 A10
9621 A10
9626 A11
9669 E2
9670 E2
9671 E2
9672 E2
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9675 E6
9686 E6
9691 H3

LSP: SCART I/O (Res)



For Europe

	SIZE/TUBE			
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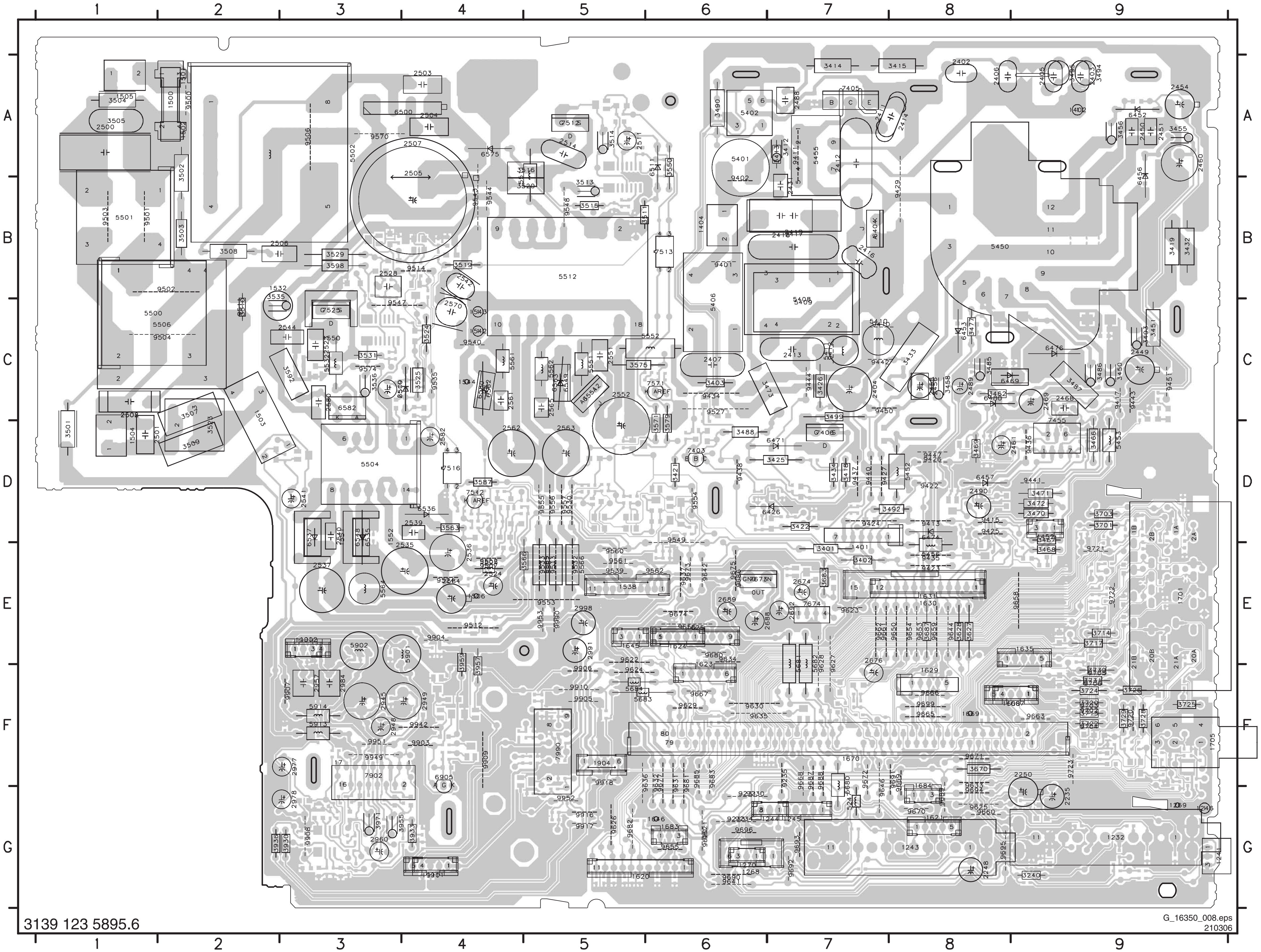
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2704 B2
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2706 B6
2708 B4
2710 C8
2711 C6
2712 D8
2713 E3
2714 E3
2715 F3
2716 E6
2717 B8
2718 B8
2719 B4
2720 B5
2721 F6
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3727 D4
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3732 D3
3733 D7
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3735 E3
3736 E8
3737 E2
3738 E3
3739 E7
3740 E7
3741 F2
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6705 C4
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Layout LSP (Top Side)

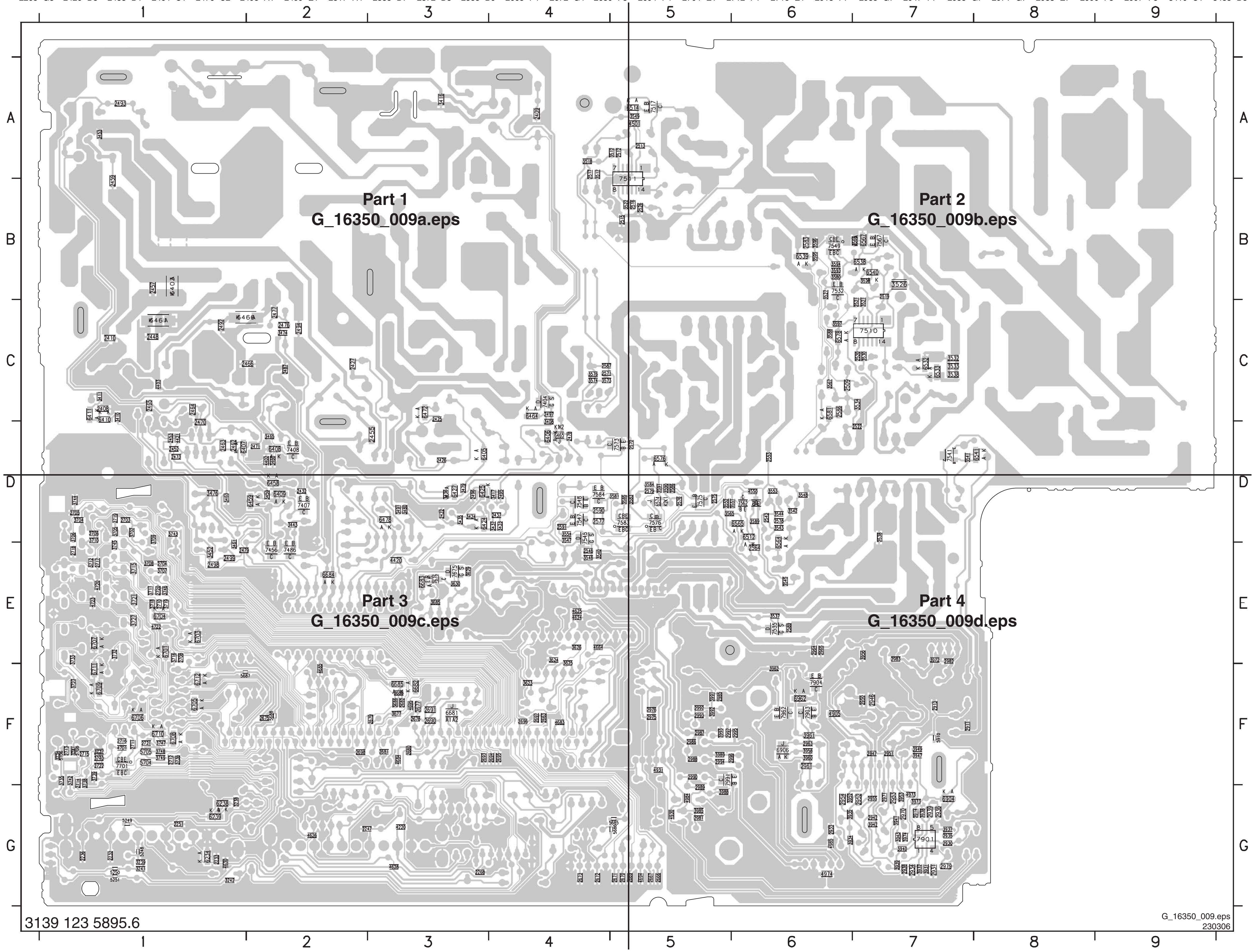
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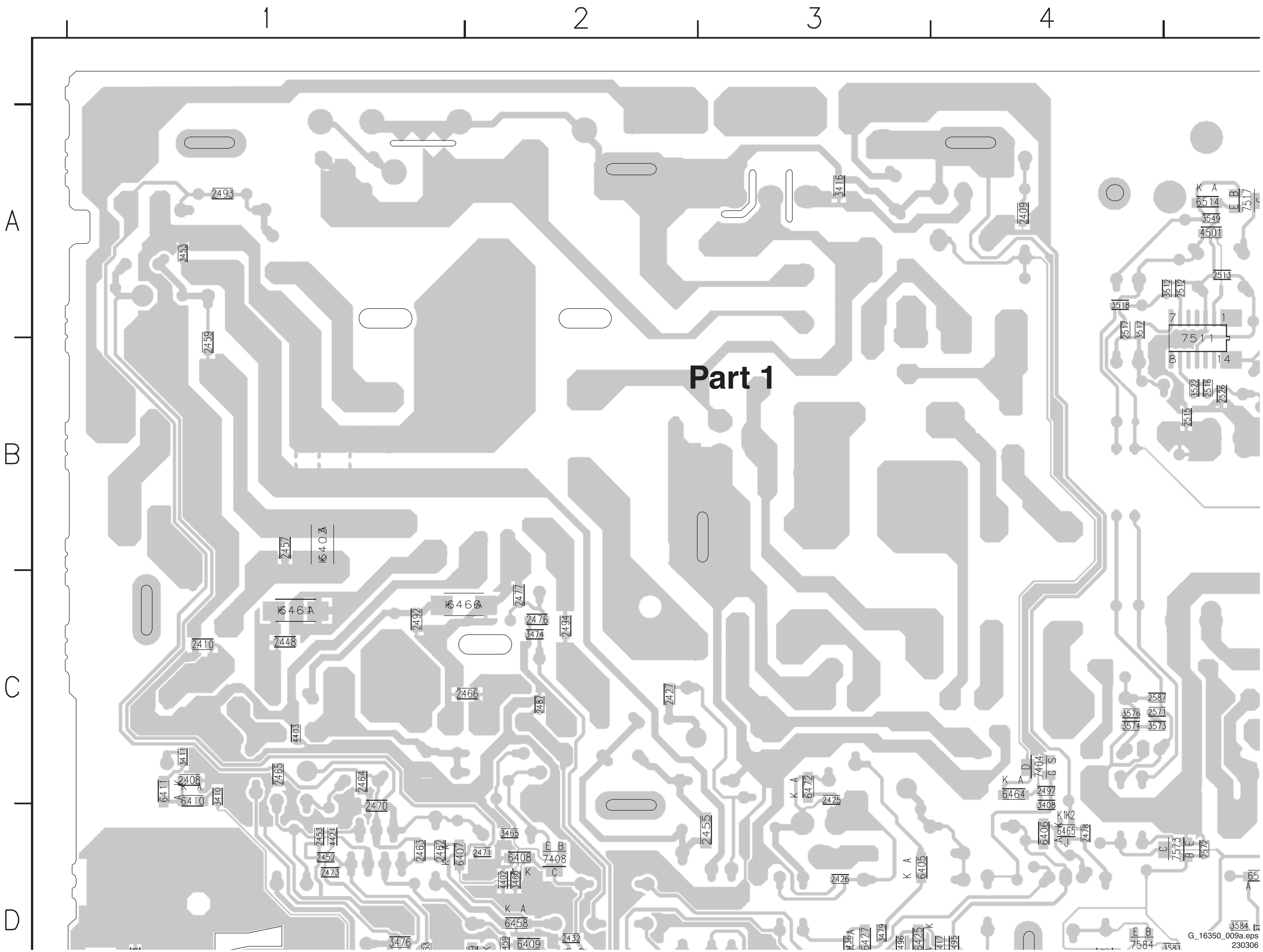
Layout LSP (Overview Bottom Side)

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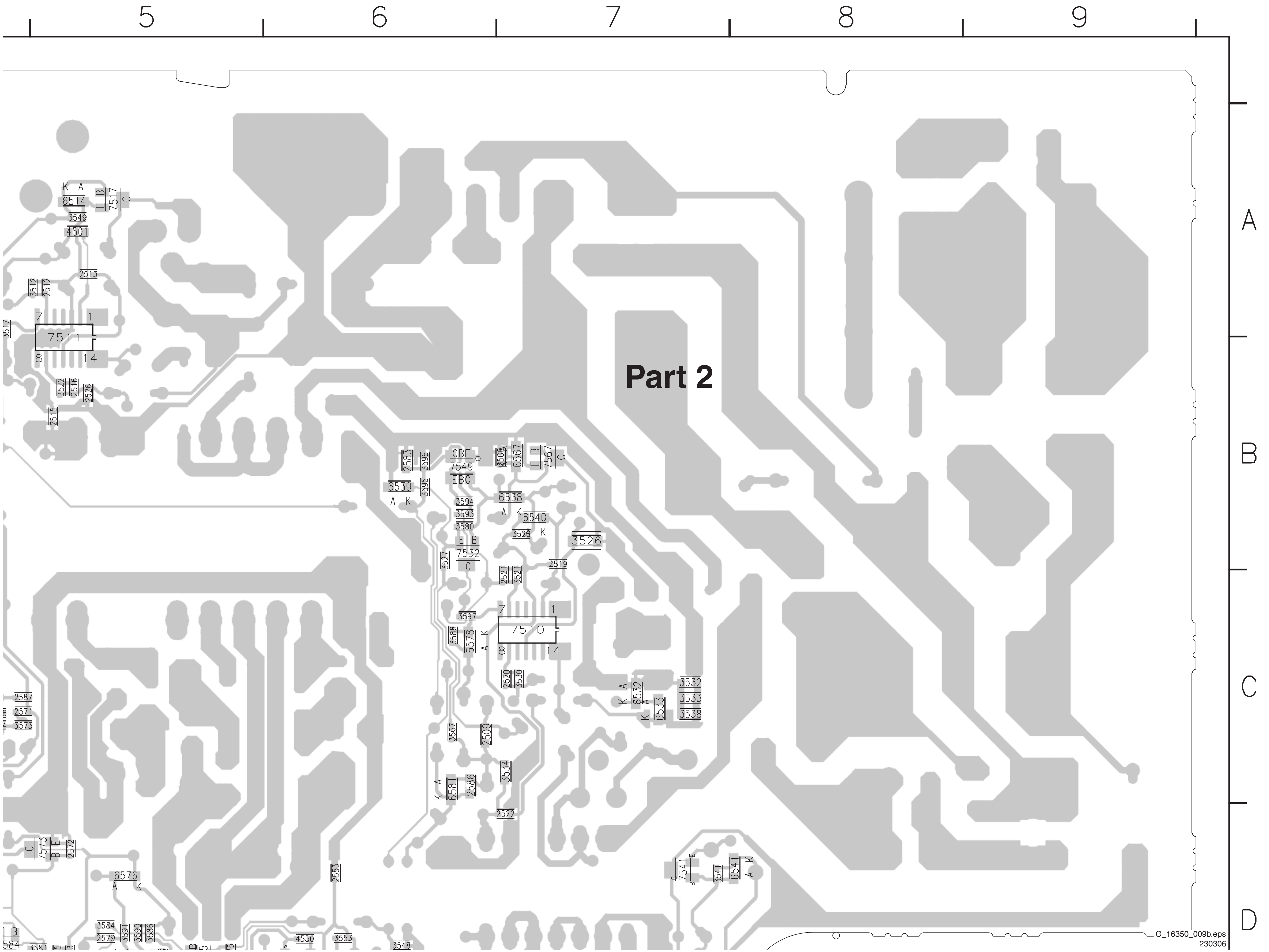
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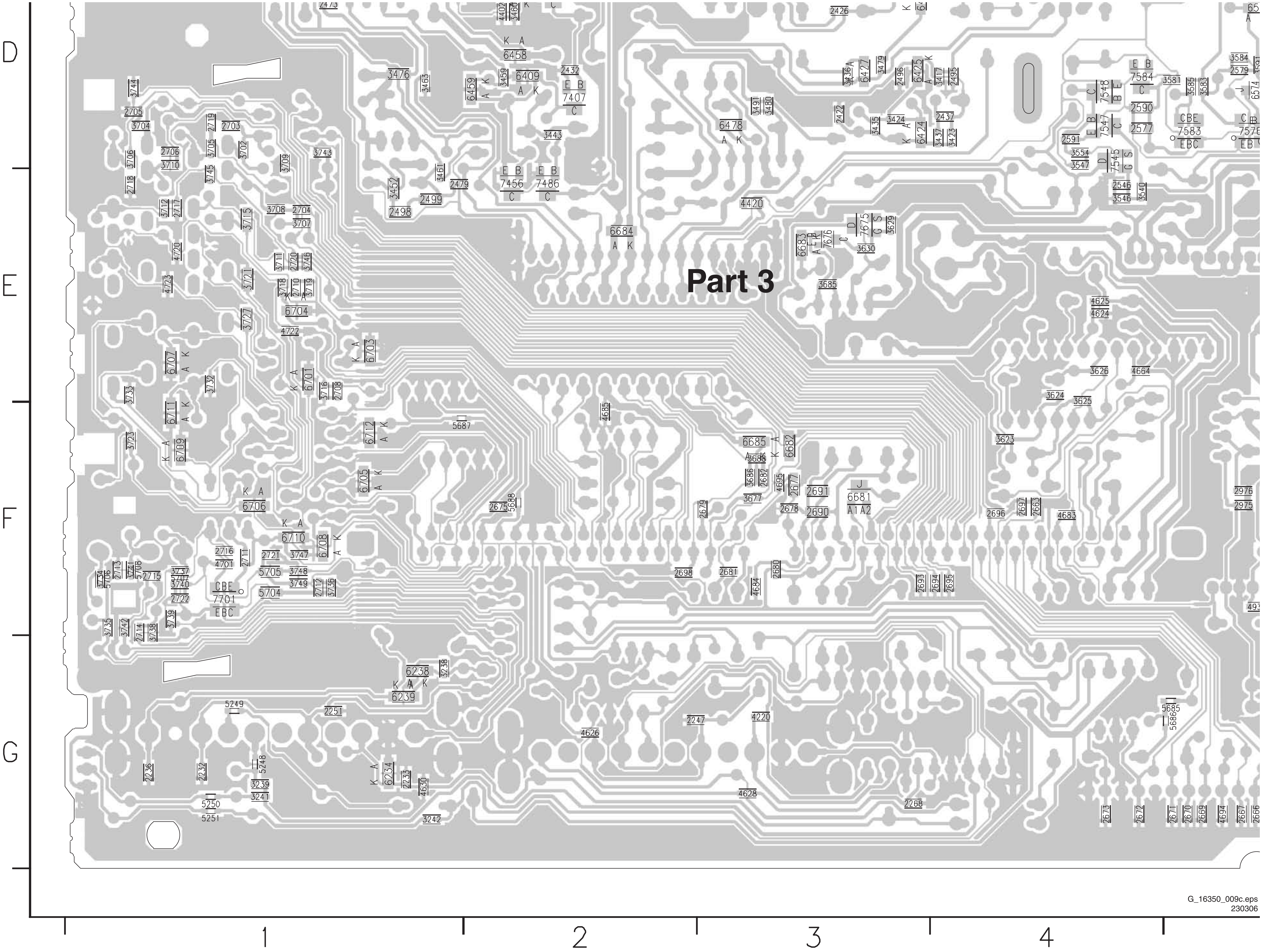
Layout LSP (Part 1 Bottom Side)



Layout LSP (Part 2 Bottom Side)

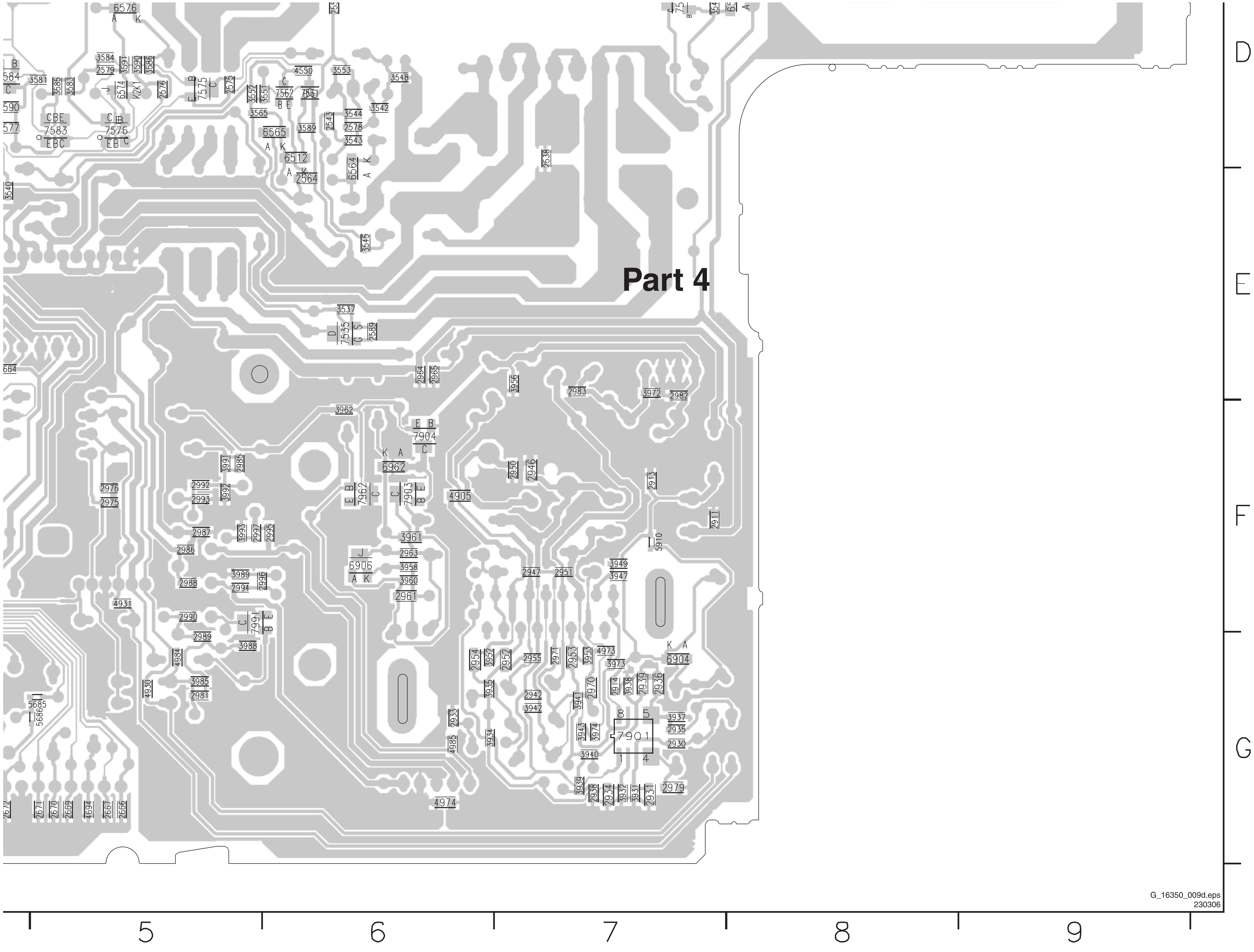


Layout LSP (Part 3 Bottom Side)

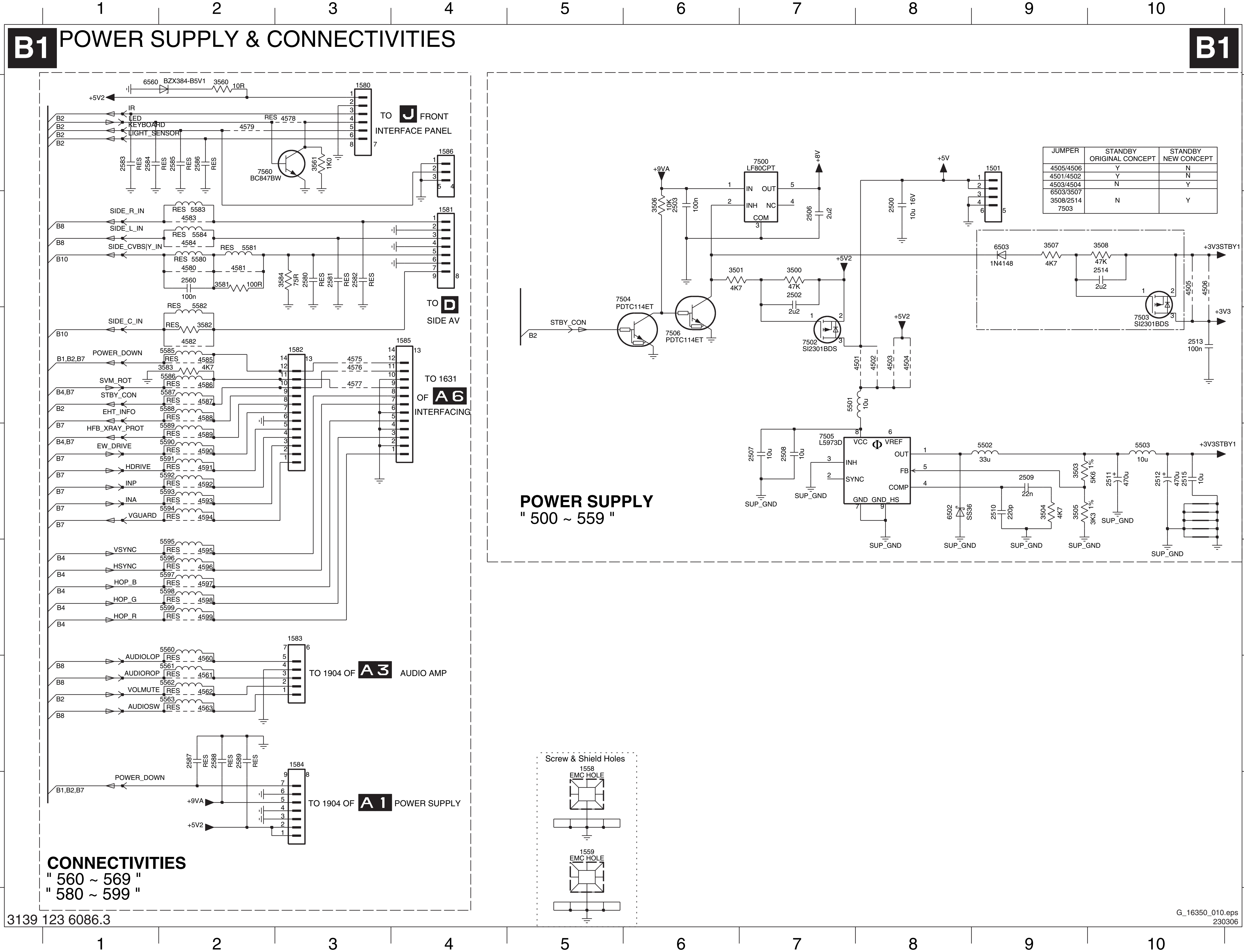


G_16350_009c.eps
230306

Layout LSP (Part 4 Bottom Side)

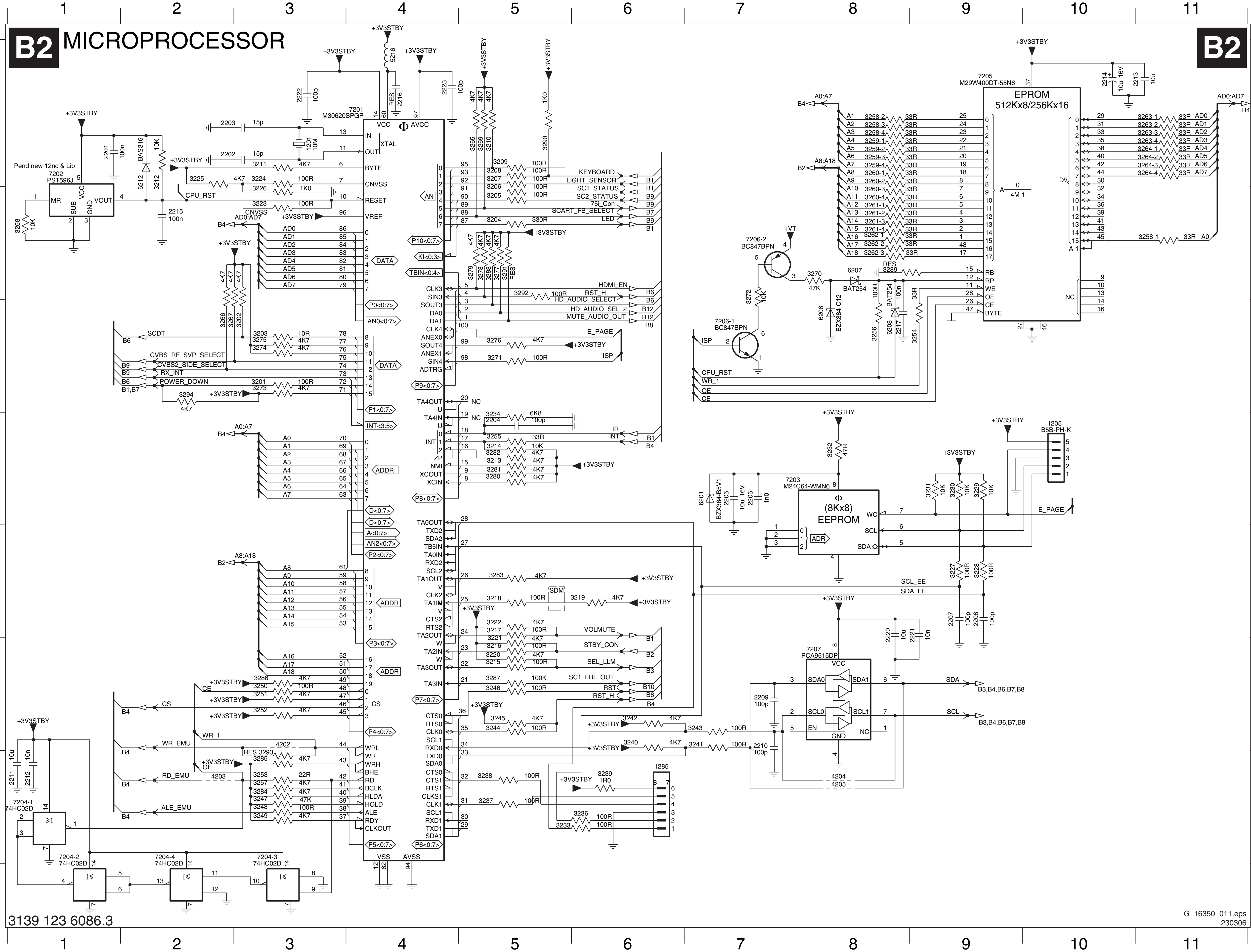


SSB: Power Supply & Connectivities



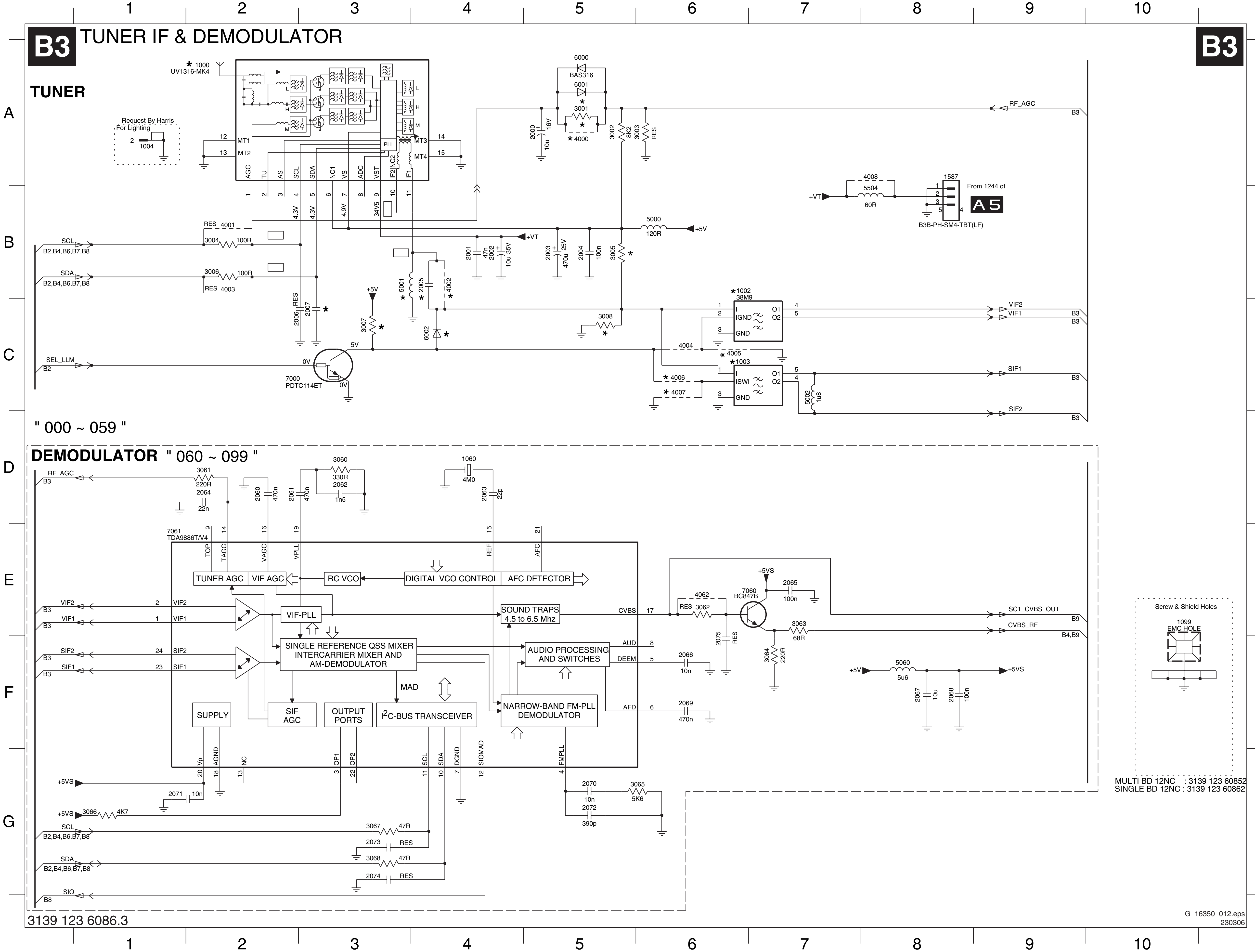
1501 A9
1558 F5
1559 G5
1580 A3
1581 B4
1582 C3
1583 E3
1584 F3
1585 C4
1586 A4
2500 B8
2502 B7
2503 B6
2506 B7
2507 D7
2508 D7
2509 D9
2510 D9
2511 D10
2512 D10
2513 C10
2514 B10
2515 D10
2560 B2
2580 B3
2581 B3
2582 B3
2583 A1
2584 A1
2585 A2
2586 A2
2587 F2
2588 F2
2589 F2
3500 B7
3501 B6
3503 D9
3504 D9
3505 D9
3506 B6
3507 B9
3508 B10
3560 A2
3561 A3
3581 B2
3582 C2
3583 C2
3584 B3
4501 C8
4502 C8
4503 C8
4504 C8
4505 B10
4506 B10
4560 F2
4561 F2
4562 F2
4563 F2
4575 C3
4576 C3
4577 C3
4578 A3
4579 A2
4580 B2
4581 B2
4582 C2
4583 B2
4584 B2
4585 C2
4586 C2
4587 C2
4588 C2
4589 D2
4590 D2
4591 D2
4592 D2
4593 D2
4594 D2
4595 E2
4596 E2
4597 E2
4598 E2
4599 E2
5501 C7
5502 D9
5503 D10
5560 E2
5561 F2
5562 F2
5563 F2
5580 B2
5581 B2
5582 C2
5583 B2
5584 B2
5585 C2
5586 C2
5587 C2
5588 C2
5589 D2
5590 D2
5591 D2
5592 D2
5593 D2
5594 D2
5595 E2
5596 E2
5597 E2
5598 E2
5599 E2
6502 D8
6503 B9
6560 A1
7500 A7
7502 C7
7503 C10
7504 B5
7505 D7
7506 C6
7560 A2

SSB: Micro Processor



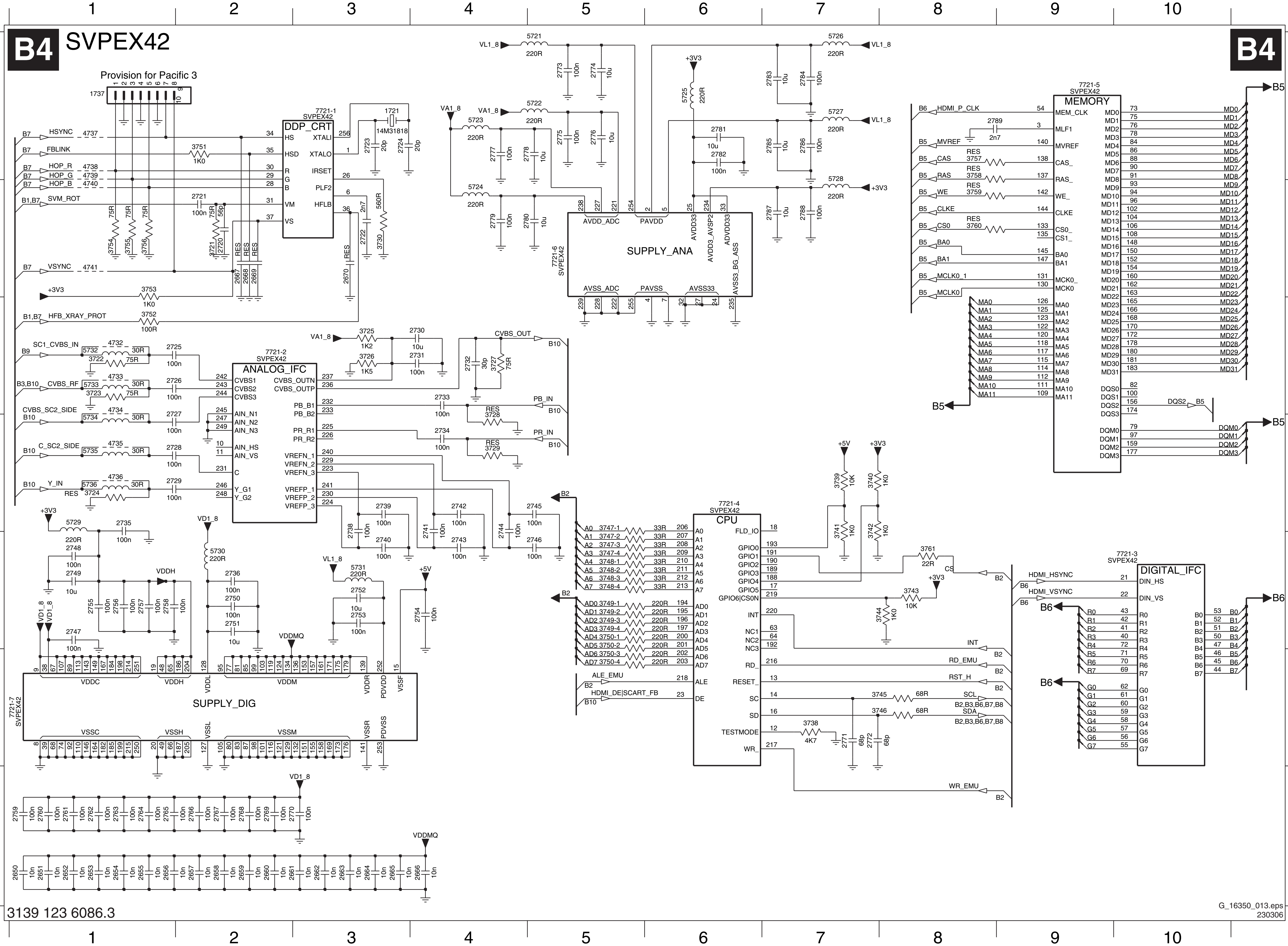
1201 A3
1205 D10
1285 G6
2201 A1
2202 A2
2203 A2
2204 D5
2205 D7
2206 D7
2207 E9
2208 E9
2209 F7
2210 F7
2211 G1
2212 G1
2213 A10
2214 A10
2215 B2
2216 A4
2217 C8
2220 E8
2221 E9
2222 A3
2223 A4
3201 C3
3202 C3
3203 C3
3204 B5
3205 B5
3206 A5
3207 A5
3208 A5
3209 A5
3210 A5
3211 A3
3212 A2
3213 D5
3214 D5
3215 F5
3216 F5
3217 E5
3218 E5
3219 E6
3220 F5
3221 E5
3222 E5
3223 B3
3224 A3
3225 A2
3226 B3
3227 E9
3228 E9
3229 D9
3230 D9
3231 D9
3232 D8
3233 G5
3234 D5
3236 G6
3237 G5
3238 G5
3239 G6
3240 F6
3241 F7
3242 F6
3243 F7
3244 F5
3245 F5
3246 F5
3247 G3
3248 G3
3249 G3
3250 F3
3251 F3
3252 F3
3253 G3
3254 C9
3255 D5
3256 C8
3257 G3
3258-1 B11
3258-2 A8
3258-3 A8
3258-4 A8
3259-1 A8
3259-2 A8
3259-3 A8
3259-4 A8
3260-1 A8
3260-2 A8
3260-3 B8
3260-4 B8
3261-1 B8
3261-2 B8
3261-3 B8
3261-4 B8
3262-1 B8
3262-2 B8
3262-3 B8
3263-1 A11
3263-2 A11
3263-3 A11
3263-4 A11
3264-1 A11
3264-2 A11
3264-3 A11
3264-4 A11
3265 A5
3266 C2
3267 C2
3268 B1
3269 A5
3270 B8
3271 C5
3272 B7
3273 C3
3274 C3
3275 C3
3276 C5
3277 B5
3278 B5
3279 B5
3280 D5
3281 D5
3282 D5
3283 E5
3284 G3
3285 G3
3286 F3
3287 F5
3288 B5
3289 B8
3290 A5
3291 B5
3292 B5
3293 G3
3294 C2
4202 F3
4203 G2
4204 G8
4205 G8
5216 A4
6201 D7
6206 C8
6207 B8
6208 C8
6212 A2
7201 A4
7202 A1
7203 D8
7204-1 G1
7204-2 G1
7204-3 G3
7204-4 G2
7205 A9
7206-1 C7
7206-2 B7
7207 F8

SSB: Tuner IF & Demodulator



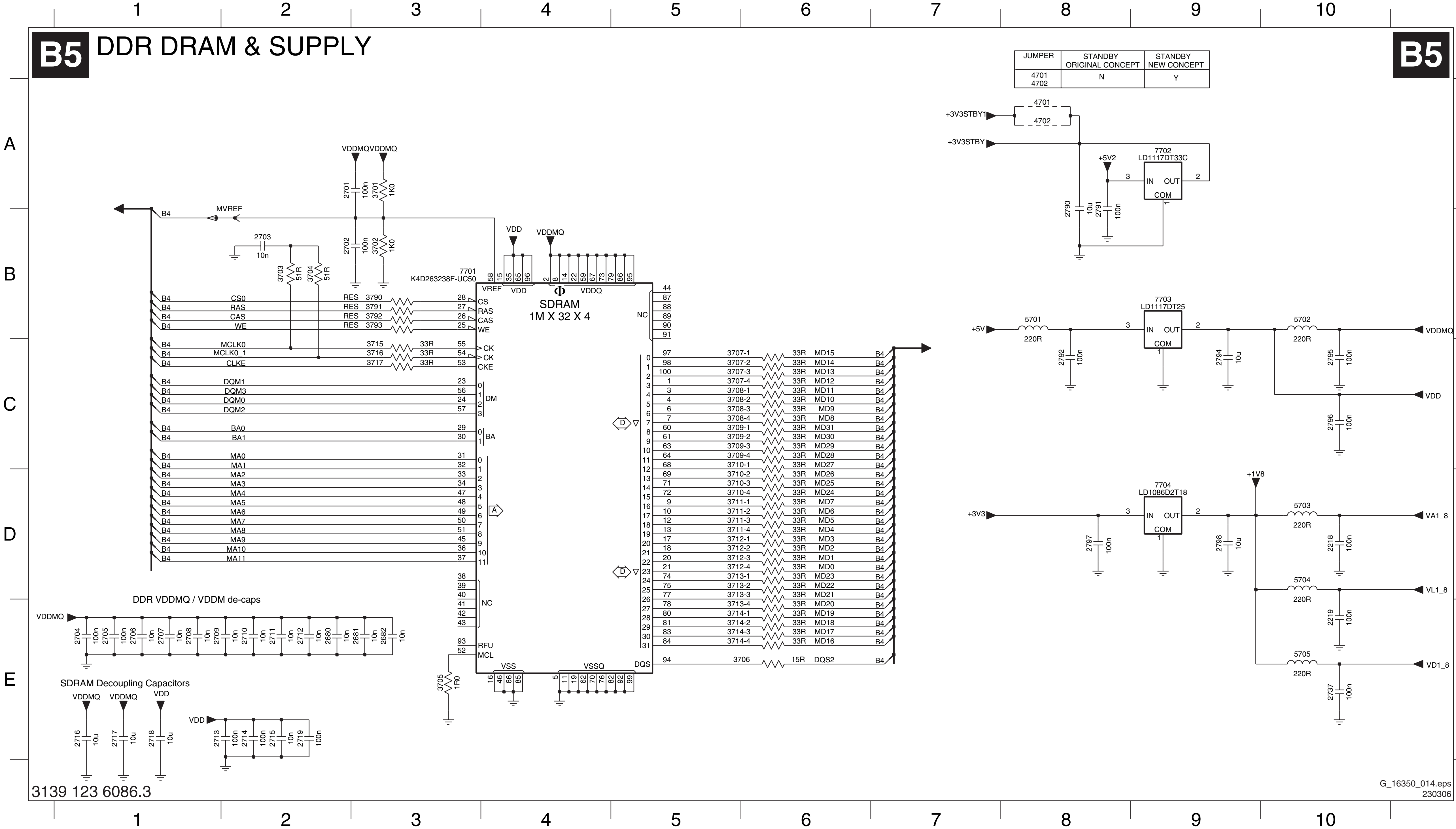
1000	A2
1002	B6
1003	C6
1004	A1
1060	D4
1099	E10
1587	A8
2000	A5
2001	B4
2002	B4
2003	B5
2004	B5
2005	B4
2006	C3
2007	C3
2060	D2
2061	D2
2062	D3
2063	D4
2064	D2
2065	E7
2066	F6
2067	F8
2068	F8
2069	F6
2070	G5
2071	G1
2072	G5
2073	G3
2074	G3
2075	F6
3001	A5
3002	A5
3003	A5
3004	B2
3005	B5
3006	B2
3007	C3
3008	C5
3060	D3
3061	D2
3062	E6
3063	E7
3064	F7
3065	G6
3066	G1
3067	G3
3068	G3
4000	A5
4001	B2
4002	B4
4003	B2
4004	C6
4005	C6
4006	C6
4007	C6
4008	A8
4062	E6
5000	B6
5001	B3
5002	C7
5060	F8
5504	B8
6000	A5
6001	A5
6002	C4
7000	C2
7060	E6
7061	E1

SSB: SVPEX42



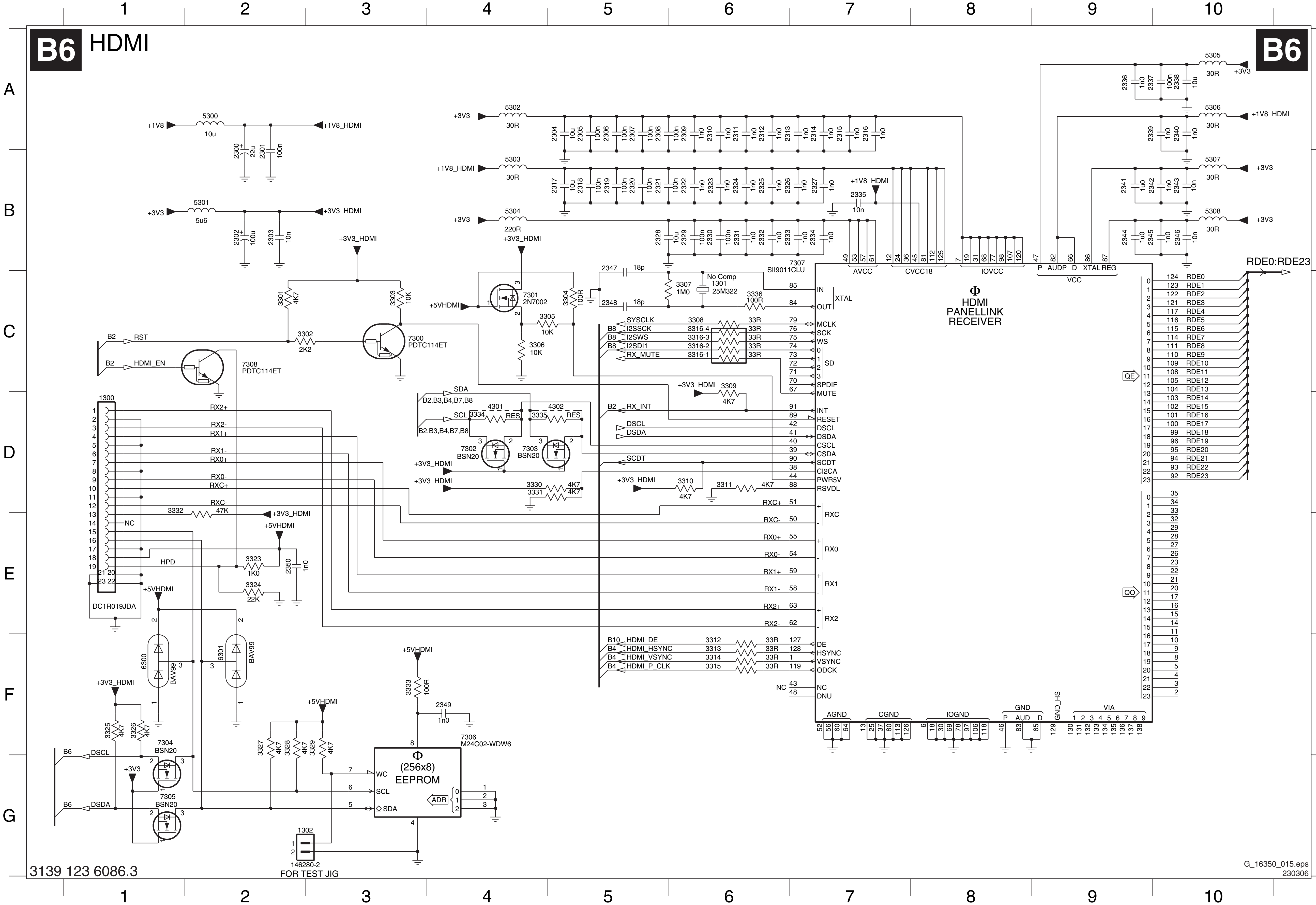
1721 A3
1737 A1
2650 G1
2651 G1
2652 G1
2653 G1
2654 G1
2655 G1
2656 G1
2657 G2
2658 G2
2659 G2
2660 G2
2661 G3
2662 G3
2663 G3
2664 G3
2665 G3
2666 G4
2667 B2
2668 B2
2669 B2
2670 B3
2720 B2
2721 B2
2722 B3
2723 A3
2724 A3
2725 C1
2726 C1
2727 D1
2728 D1
2729 D1
2730 C4
2731 C4
2732 C4
2733 C4
2734 D4
2735 D1
2736 E2
2738 D3
2739 D3
2740 E3
2741 D4
2742 D4
2743 E4
2744 D4
2745 D5
2746 E5
2747 E1
2748 E1
2749 E1
2750 E2
2751 E2
2752 E3
2753 E3
2754 E4
2755 E1
2756 E1
2757 E1
2758 E1
2759 G1
2760 G1
2761 G1
2762 G1
2763 G1
2764 G1
2765 G1
2766 G2
2767 G2
2768 G2
2769 G2
2770 G3
2771 F7
2772 F7
2773 A5
2774 A5
2775 A5
2776 A5
2777 A4
2778 A5
2779 B4
2780 B5
2781 A6
2782 A6
2783 A7
2784 A7
2785 A7
2786 A7
2787 B7
2788 B7
2789 A8
3721 B2
3722 C1
3723 C1
3724 D1
3725 C3
3726 C3
3727 C4
3728 D4
3729 D4
3730 B3
3738 F7
3739 D7
3740 D7
3741 D7
3742 D7
3743 E8
3744 E8
3745 F8
3746 F8
3747-1 D5
3747-2 E5
3747-3 E5
3747-4 E5
3748-1 E5
3748-2 E5
3748-3 E5
3748-4 E5
3749-1 E5
3749-2 E5
3749-3 E5
3749-4 E5
3750-1 E5
3750-2 E5
3750-3 F5
3750-4 F5
3751 A2
3752 C1
3753 B1
3754 B1
3755 B1
3756 B1
3757 A8
3758 A8
3759 B8
3760 B8
3761 E8
4732 C1
4733 C1
4734 C1
4735 D1
4736 D1
4737 A1
4738 A1
4739 A1
4740 B1
4741 B1
5721 A5
5722 A5
5723 A4
5724 B4
5725 A6
5726 A7
5727 A7
5728 B7
5729 D1
5730 E2
5731 E3
5732 C1
5733 C1
5734 D1
5735 D1
5736 D1
7721-1 A3
7721-2 C2
7721-3 E10
7721-4 D6
7721-5 A9
7721-6 B5
7721-7 F1

SSB: DDR DRAM & Supply



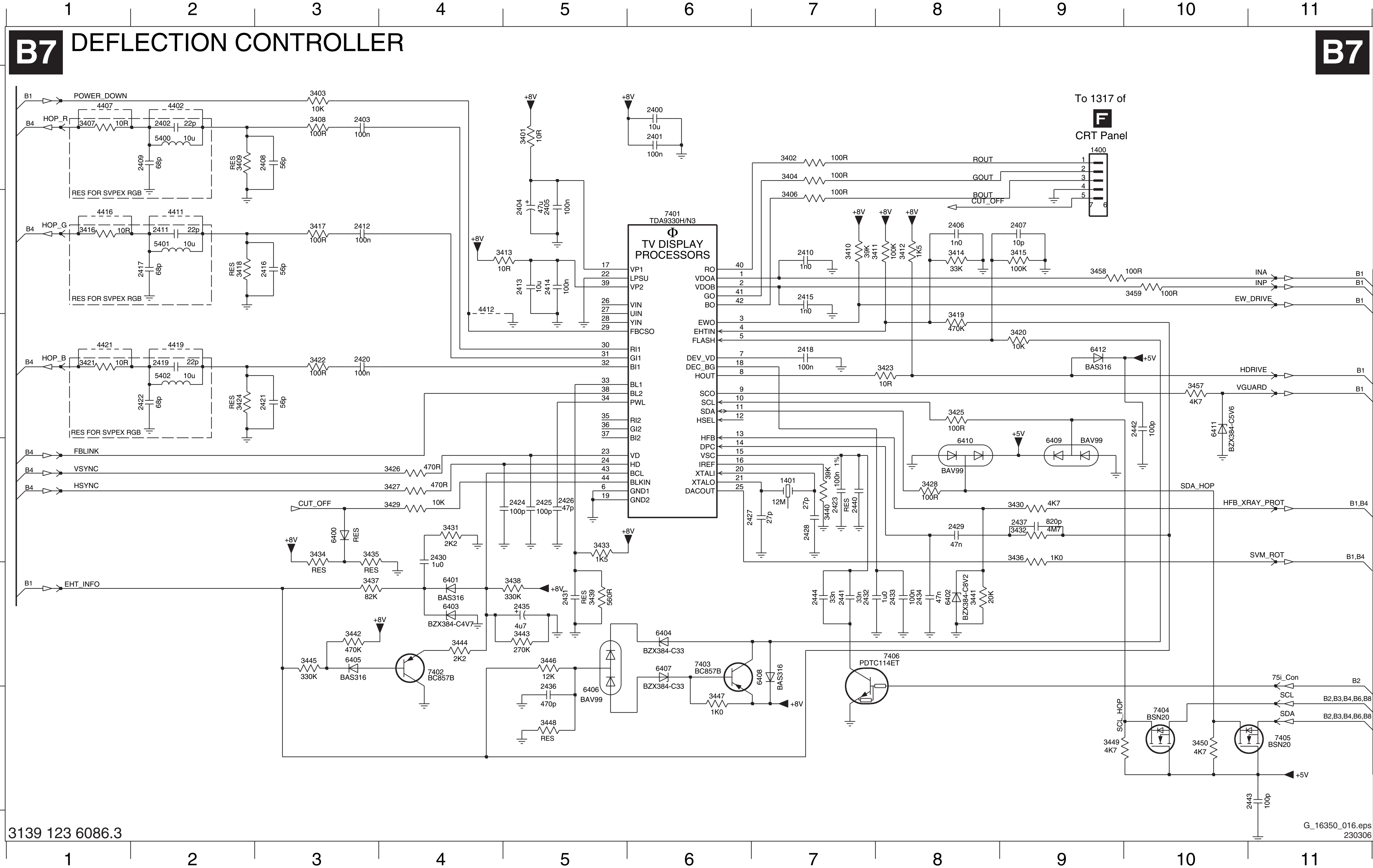
2218 D10
2219 E10
2680 E2
2681 E3
2682 E3
2701 A2
2702 B2
2703 B2
2704 E1
2705 E1
2706 E1
2707 E1
2708 E1
2709 E1
2710 E2
2711 E2
2712 E2
2713 E1
2714 E2
2715 E2
2716 E1
2717 E1
2718 E1
2719 E2
2737 E10
2790 A8
2791 A8
2792 C8
2794 C9
2795 C10
2796 C10
2797 D8
2798 D9
3701 A3
3702 B3
3703 B2
3704 B2
3705 E3
3706 E6
3707-1 C5
3707-2 C5
3707-3 C5
3707-4 C5
3708-1 C5
3708-2 C5
3708-3 C5
3708-4 C5
3709-1 C5
3709-2 C5
3709-3 C5
3709-4 C5
3710-1 C5
3710-2 D5
3710-3 D5
3710-4 D5
3711-1 D5
3711-2 D5
3711-3 D5
3711-4 D5
3712-1 D5
3712-2 D5
3712-3 D5
3712-4 D5
3713-1 D5
3713-2 D5
3713-3 D5
3713-4 E5
3714-1 E5
3714-2 E5
3714-3 E5
3714-4 E5
3715 C3
3716 C3
3717 C3
3790 B3
3791 B3
3792 B3
3793 B3
4701 A8
4702 A8
5701 B8
5702 B10
5703 D10
5704 D10
5705 E10
7701 B3
7702 A9
7703 B9
7704 D9

SSB: HDMI



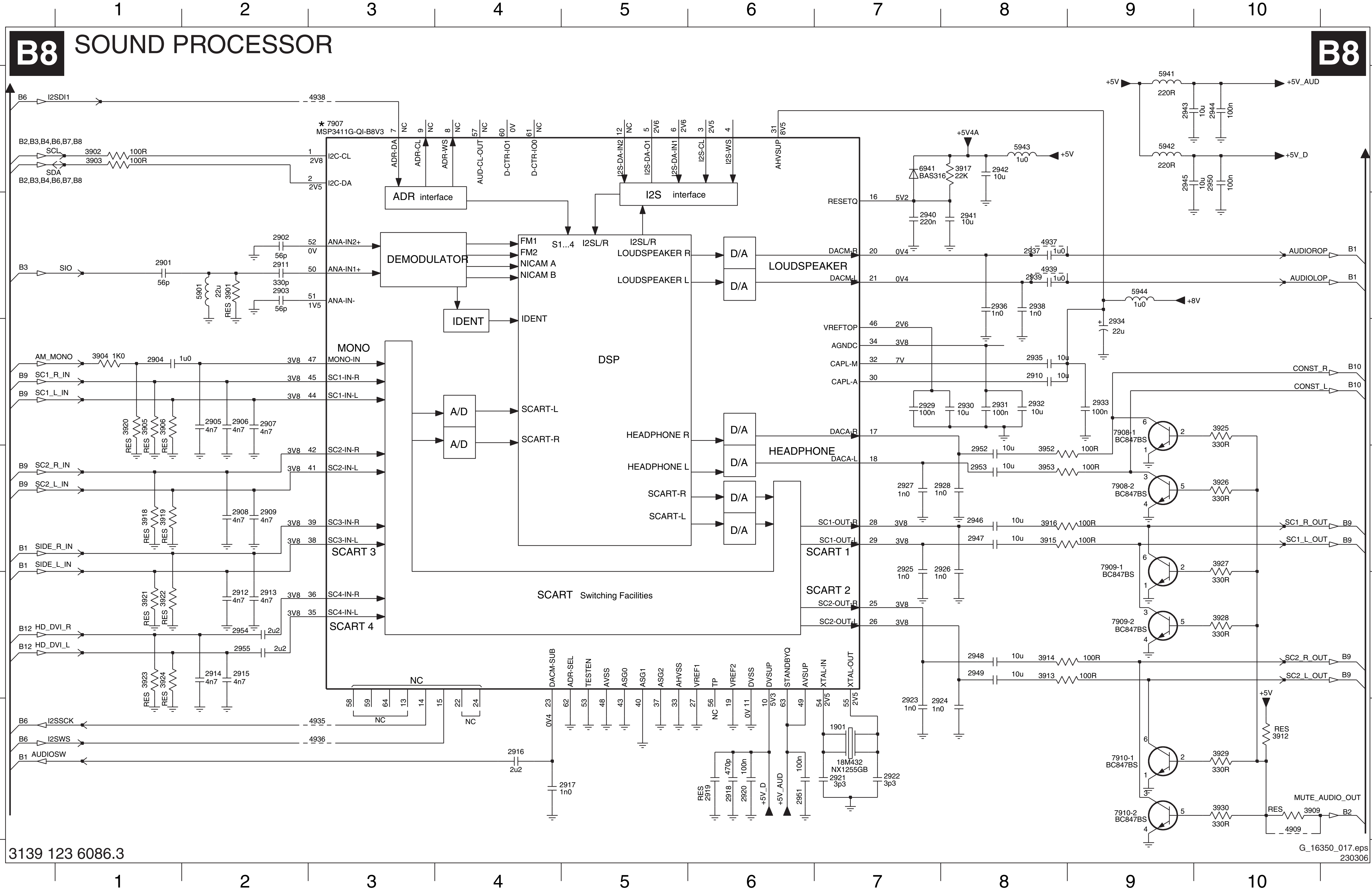
1300 D1	3334 D4
1301 C6	3335 D4
1302 G2	3336 C6
2300 B2	4301 D4
2301 B2	4302 D5
2302 B2	5300 A2
2303 B2	5301 B2
2304 A5	5302 A4
2305 A5	5303 B4
2306 A5	5304 B4
2307 A5	5305 A10
2308 A5	5306 A10
2309 A6	5307 B10
2310 A6	5308 B10
2311 A6	6300 F1
2312 A6	6301 F2
2313 A6	7300 C3
2314 A7	7301 C4
2315 A7	7302 D4
2316 A7	7303 D4
2317 B5	7304 F1
2318 B5	7305 G1
2319 B5	7306 F4
2320 B5	7307 B7
2321 B5	7308 C2
2322 B6	
2323 B6	
2324 B6	
2325 B6	
2326 B6	
2327 B7	
2328 B5	
2329 B6	
2330 B6	
2331 B6	
2332 B6	
2333 B6	
2334 B7	
2335 B7	
2336 A9	
2337 A9	
2338 A10	
2339 A9	
2340 A10	
2341 B9	
2342 B9	
2343 B10	
2344 B9	
2345 B9	
2346 B10	
2347 B5	
2348 C5	
2349 F4	
2350 E2	
3301 C2	
3302 C2	
3303 C3	
3304 C5	
3305 C4	
3306 C4	
3307 C6	
3308 C6	
3309 C6	
3310 D6	
3311 D6	
3312 F6	
3313 F6	
3314 F6	
3315 F6	
3316-1 C6	
3316-2 C6	
3316-3 C6	
3316-4 C6	
3323 E2	
3324 E2	
3325 F1	
3326 F1	
3327 F2	
3328 F2	
3329 F3	
3330 D4	
3331 D4	
3332 D1	
3333 F3	

SSB: Deflection Controller



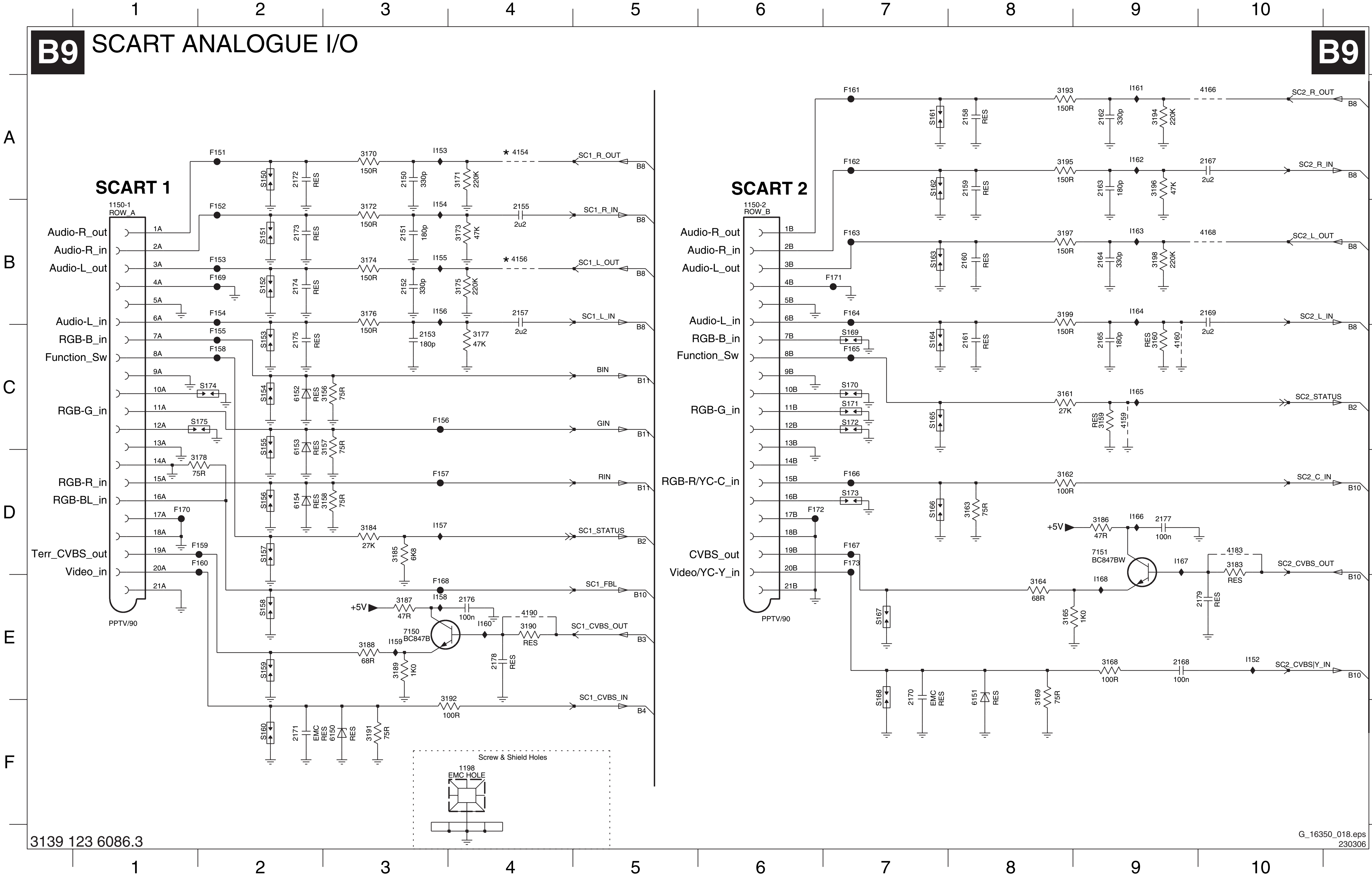
1400 A9	3435 D3
1401 D7	3436 D9
2400 A6	3437 E3
2401 A6	3438 E5
2402 A2	3439 E5
2403 A3	3440 D7
2404 B5	3441 E8
2405 B5	3442 E3
2406 B8	3443 E5
2407 B9	3444 E4
2408 A3	3445 E3
2409 A2	3446 E5
2410 B7	3447 F6
2411 B2	3448 F5
2412 B3	3449 F9
2413 B5	3450 F10
2414 B5	3457 C10
2415 B7	3458 B9
2416 B3	3459 B10
2417 B2	4402 A2
2418 C7	4407 A1
2419 C2	4411 B2
2420 C3	4412 B4
2421 C3	4416 B1
2422 C2	4419 C2
2423 D7	4421 C1
2424 D5	5400 A2
2425 D5	5401 B2
2426 D5	5402 C2
2427 D6	6400 D3
2428 D7	6401 E4
2429 D8	6402 E8
2430 D4	6403 E4
2431 E5	6404 E6
2432 E7	6405 E3
2433 E8	6406 F5
2434 E8	6407 E6
2435 E5	6408 E7
2436 F5	6409 C9
2437 D9	6410 D8
2440 D7	6411 C10
2441 E7	6412 C9
2442 C10	7401 B6
2443 F11	7402 E4
2444 E7	7403 E6
3401 A5	7404 F10
3402 A7	7405 F11
3403 A3	7406 E8
3404 A7	
3406 B7	
3407 A1	
3408 A3	
3409 A2	
3410 B7	
3411 B7	
3412 B8	
3413 B5	
3414 B8	
3415 B9	
3416 B1	
3417 B3	
3418 B2	
3419 C8	
3420 C9	
3421 C1	
3422 C3	
3423 C8	
3424 C2	
3425 C8	
3426 D4	
3427 D4	
3428 D8	
3429 D4	
3430 D9	
3431 D4	
3432 D9	
3433 D5	
3434 D3	

SSB: Sound Processor



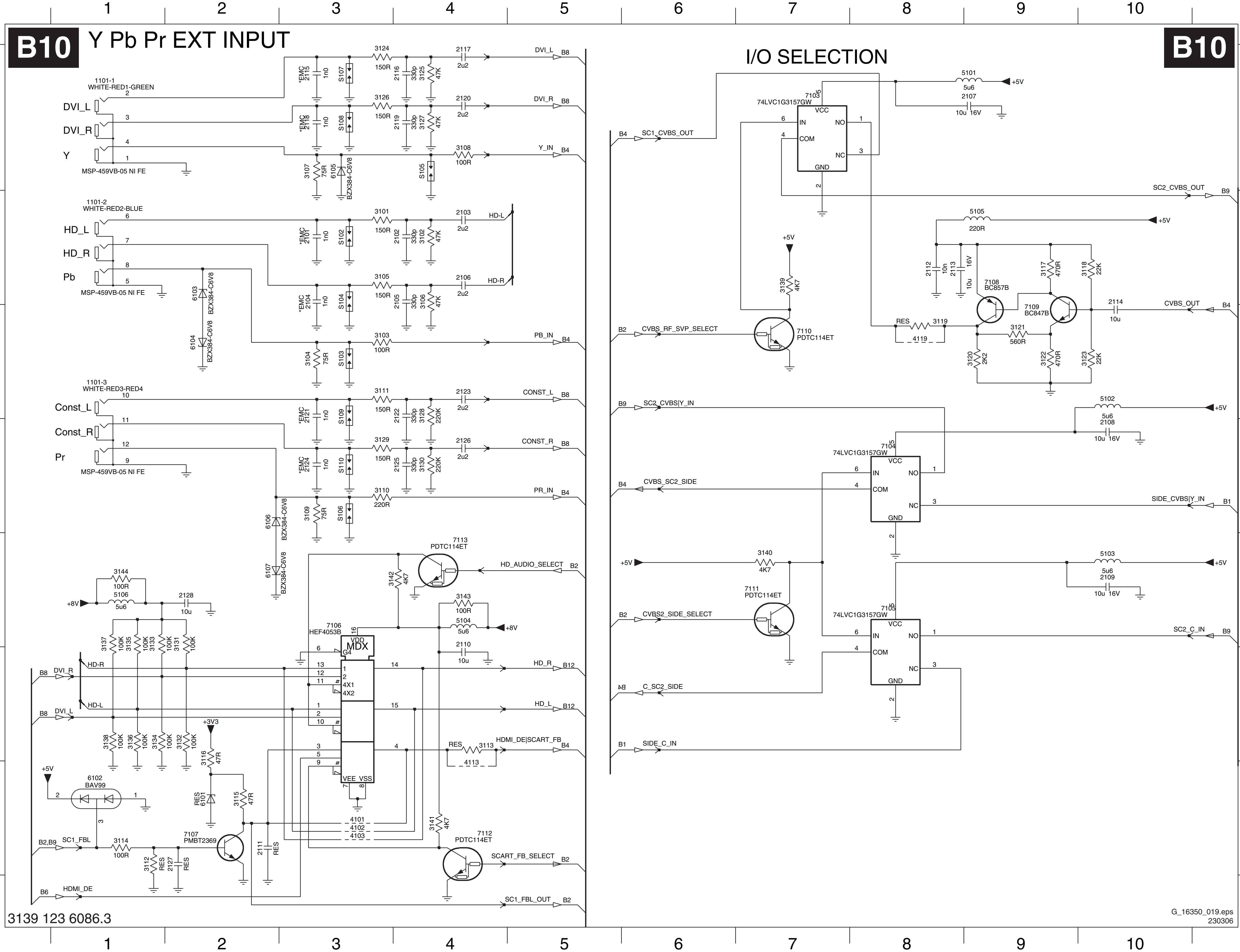
1901 F7
2901 B1
2902 B2
2903 B2
2904 C1
2905 C2
2906 C2
2907 C2
2908 D2
2909 D2
2910 C8
2911 B2
2912 E2
2913 E2
2914 E2
2915 E2
2916 F4
2917 F5
2918 F6
2919 F6
2920 F6
2921 F7
2922 F7
2923 E7
2924 E7
2925 D7
2926 D7
2927 D7
2928 D8
2929 C7
2930 C8
2931 C8
2932 C8
2933 C9
2934 B9
2935 C8
2936 B8
2937 B8
2938 B8
2939 B8
2940 B7
2941 B8
2942 A8
2943 A9
2944 A10
2945 A9
2946 D8
2947 D8
2948 E8
2949 E8
2950 A10
2951 F6
2952 D8
2953 D8
2954 E2
2955 E2
3901 B2
3902 A1
3903 A1
3904 C1
3905 C1
3906 C1
3909 F10
3912 F10
3913 E8
3914 E8
3915 D8
3916 D8
3917 A8
3918 D1
3919 D1
3920 C1
3921 E1
3922 E1
3923 E1
3924 E1
3925 C10
3926 D10
3927 D10
3928 E10
3929 F10
3930 F10
3952 D8
3953 D8
4909 F10
4935 F3
4936 F3
4937 B8
4938 A3
4939 B8
5901 B2
5941 A9
5942 A9
5943 A8
5944 B9
6941 A7
7907 A3
7908-1 C9
7908-2 D9
7909-1 D9
7909-2 E9
7910-1 F9
7910-2 F9

SSB: SCART Analogue I/O



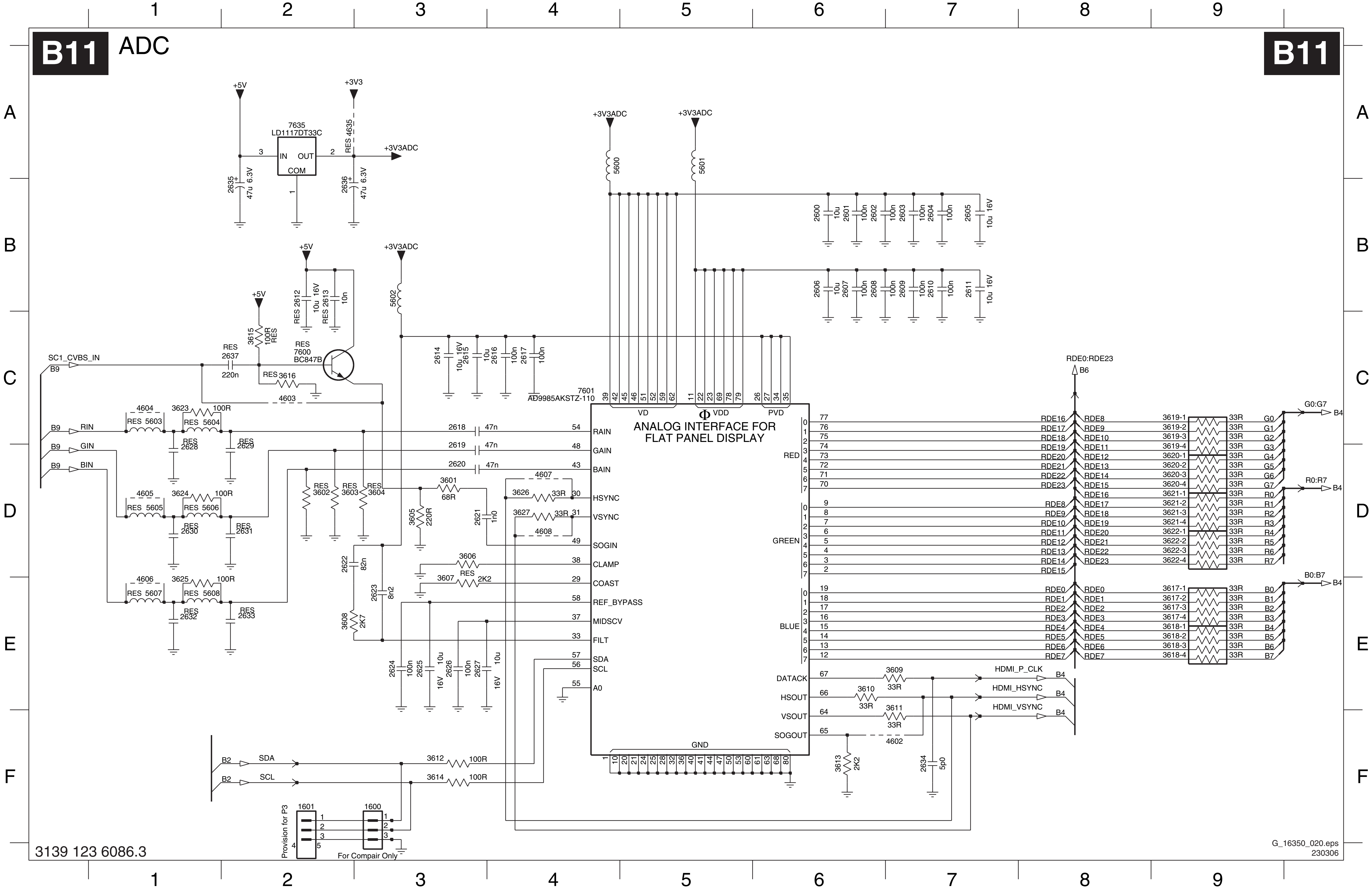
1150-1 B1	6151 E8
1150-2 B6	6152 C2
1198 F4	6153 C2
2150 A3	6154 D2
2151 B3	7150 E3
2152 B3	7151 D9
2153 C3	F151 A2
2155 B4	F152 B2
2157 B4	F153 B2
2158 A8	F154 B2
2159 A8	F155 C2
2160 B8	F156 C3
2161 C8	F157 D3
2162 A9	F158 C2
2163 A9	F159 D2
2164 B9	F160 D2
2165 C9	F161 A7
2167 A10	F162 A7
2168 E9	F163 B7
2169 B10	F164 B7
2170 E7	F165 C7
2171 F2	F166 D7
2172 A2	F167 D7
2173 B2	F168 E3
2174 B2	F169 B2
2175 C2	F170 D1
2176 E4	F171 B7
2177 D9	F172 D6
2178 E4	F173 D7
2179 E10	I152 E10
3156 C3	I153 A3
3157 C3	I154 B3
3158 D3	I155 B3
3159 C9	I156 B3
3160 C9	I157 D3
3161 C8	I158 E3
3162 D8	I159 E3
3163 D8	I160 E4
3164 E8	I161 A9
3165 E8	I162 A9
3168 E9	I163 B9
3169 E8	I164 B9
3170 A3	I165 C9
3171 A4	I166 D9
3172 B3	I167 D9
3173 B4	I168 E9
3174 B3	S150 A2
3175 B4	S151 B2
3176 B3	S152 B2
3177 C4	S153 C2
3178 D2	S154 C2
3183 D10	S155 D2
3184 D3	S156 D2
3185 D3	S157 D2
3186 D9	S158 E2
3187 E3	S159 E2
3188 E3	S160 F2
3189 E3	S161 A7
3190 E4	S162 A7
3191 F3	S163 B7
3192 F3	S164 C7
3193 A8	S165 C7
3194 A9	S166 D7
3195 A8	S167 E7
3196 A9	S168 F7
3197 B8	S169 C7
3198 B9	S170 C7
3199 B8	S171 C7
4154 A4	S172 C7
4156 B4	S173 D7
4159 C9	S174 C2
4160 C9	S175 C1
4166 A10	
4168 B10	
4183 D10	
4190 E4	
6150 F3	

SSB: Y, Pb, Pr, Ext. Input



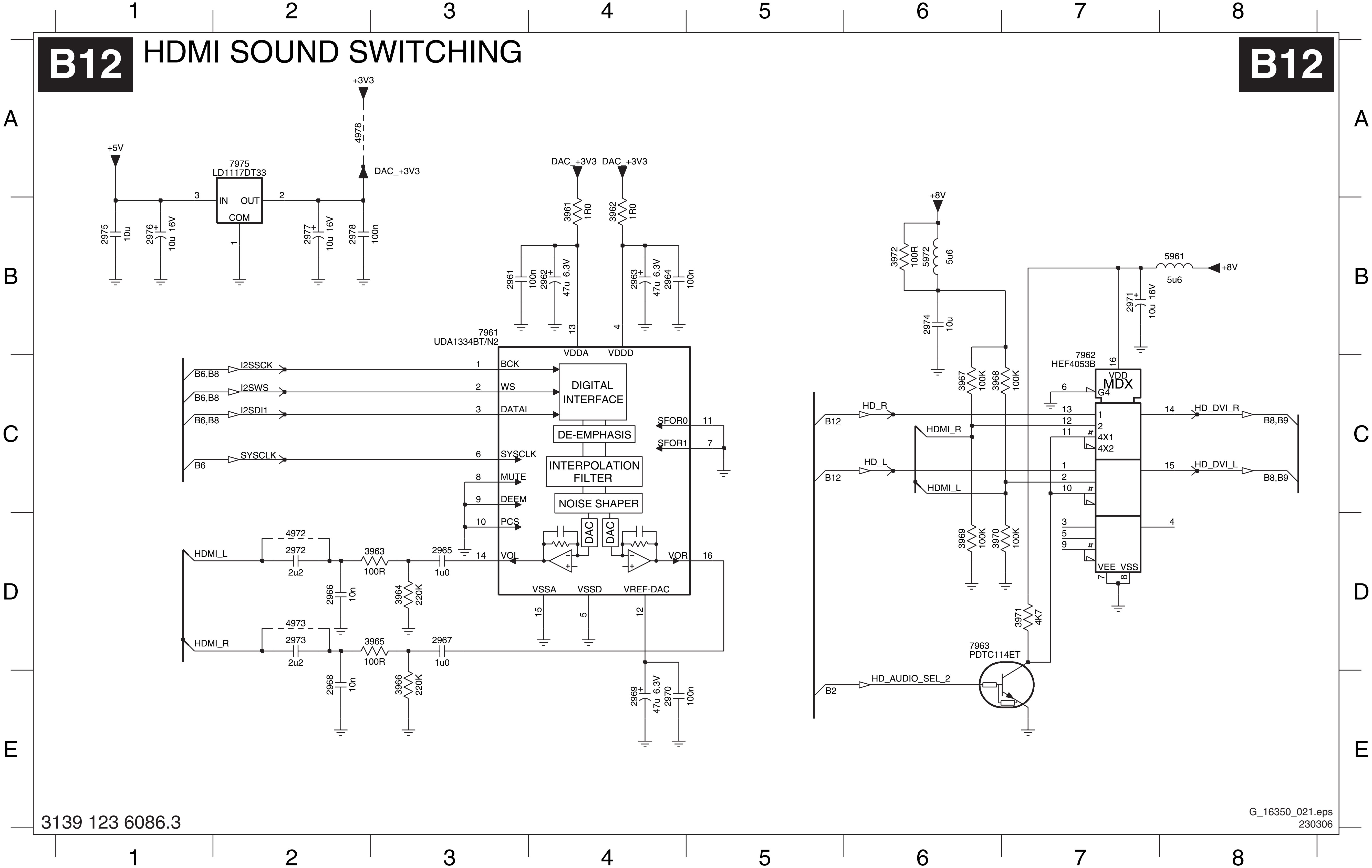
1101-1 A1
1101-2 B1
1101-3 C1
2101 B3
2102 B4
2103 B4
2104 B3
2105 B4
2106 B4
2107 A9
2108 D10
2109 E10
2110 E4
2111 G2
2112 B8
2113 B8
2114 B10
2115 A3
2116 A4
2117 A4
2118 A3
2119 A4
2120 A4
2121 C3
2122 C4
2123 C4
2124 D3
2125 D4
2126 D4
2127 G2
2128 E2
3101 B3
3102 B4
3103 C3
3104 C3
3105 B3
3106 B4
3107 A3
3108 A4
3109 D3
3110 D3
3111 C3
3112 G1
3113 F4
3114 G1
3115 G2
3116 F2
3117 B9
3118 B10
3119 C8
3120 C9
3121 C9
3122 C9
3123 C10
3124 A3
3125 A4
3126 A3
3127 A4
3128 C4
3129 D3
3130 D4
3131 E2
3132 F2
3133 E1
3134 F1
3135 E1
3136 F1
3137 E1
3138 F1
3139 B7
3140 E7
3141 G4
3142 E4
3143 E4
3144 E1
4101 G3
4102 G3
4103 G3
4113 G4
4119 C8
5101 A9
5102 C10
5103 E10
5104 E4
5105 B9
5106 E1
6101 G2
6102 G1
6103 B2
6104 C2
6105 A3
6106 D2
6107 E2
7103 A7
7104 D8
7105 E8
7106 E3
7107 G2
7108 B9
7109 C9
7110 C7
7111 E7
7112 G4
7113 E4
S102 B3
S103 C3
S104 B3
S105 A4
S106 D3
S107 A3
S108 A3
S109 C3
S110 D3

SSB: ADC



1600 F3
1601 F2
2600 B6
2601 B6
2602 B6
2603 B7
2604 B7
2605 B7
2606 B6
2607 B6
2608 B6
2609 B7
2610 B7
2611 B7
2612 B2
2613 B2
2614 C3
2615 C3
2616 C4
2617 C4
2618 C3
2619 D3
2620 D3
2621 D3
2622 D2
2623 E3
2624 E3
2625 E3
2626 E3
2627 E3
2628 C1
2629 C2
2630 D1
2631 D2
2632 E1
2633 E2
2634 F7
2635 B2
2636 B2
2637 C2
3601 D3
3602 D2
3603 D2
3604 D3
3605 D3
3606 D3
3607 E3
3608 E2
3609 E7
3610 E6
3611 F7
3612 F3
3613 F6
3614 F3
3615 C2
3616 C2
3617-1 E9
3617-2 E9
3617-3 E9
3617-4 E9
3618-1 E9
3618-2 E9
3618-3 E9
3618-4 E9
3619-1 C9
3619-2 C9
3619-3 C9
3619-4 D9
3620-1 D9
3620-2 D9
3620-3 D9
3620-4 D9
3621-1 D9
3621-2 D9
3621-3 D9
3621-4 D9
3622-1 D9
3622-2 D9
3622-3 D9
3622-4 D9
3623 C1
3624 D1
3625 E1
3626 D4
3627 D4
4602 F7
4603 C2
4604 C1
4605 D1
4606 E1
4607 D4
4608 D4
4635 A2
5600 A4
5601 A5
5602 B3
5603 C1
5604 C1
5605 D1
5606 D1
5607 E1
5608 E1
7600 C2
7601 C4
7635 A2

SSB: HDMI Sound Switching



2961 B3
2962 B4
2963 B4
2964 B4
2965 D3
2966 D2
2967 D3
2968 E2
2969 E4
2970 E4
2971 B7
2972 D2
2973 D2
2974 B6
2975 B1
2976 B1
2977 B2
2978 B2
3961 B4
3962 B4
3963 D3
3964 D3
3965 D3
3966 E3
3967 C6
3968 C6
3969 D6
3970 D6
3971 D7
3972 B6
4972 D2
4973 D2
4978 A2
5961 B8
5972 B6
7961 B3
7962 C7
7963 D6
7975 A2

Layout SSB (Top Side)

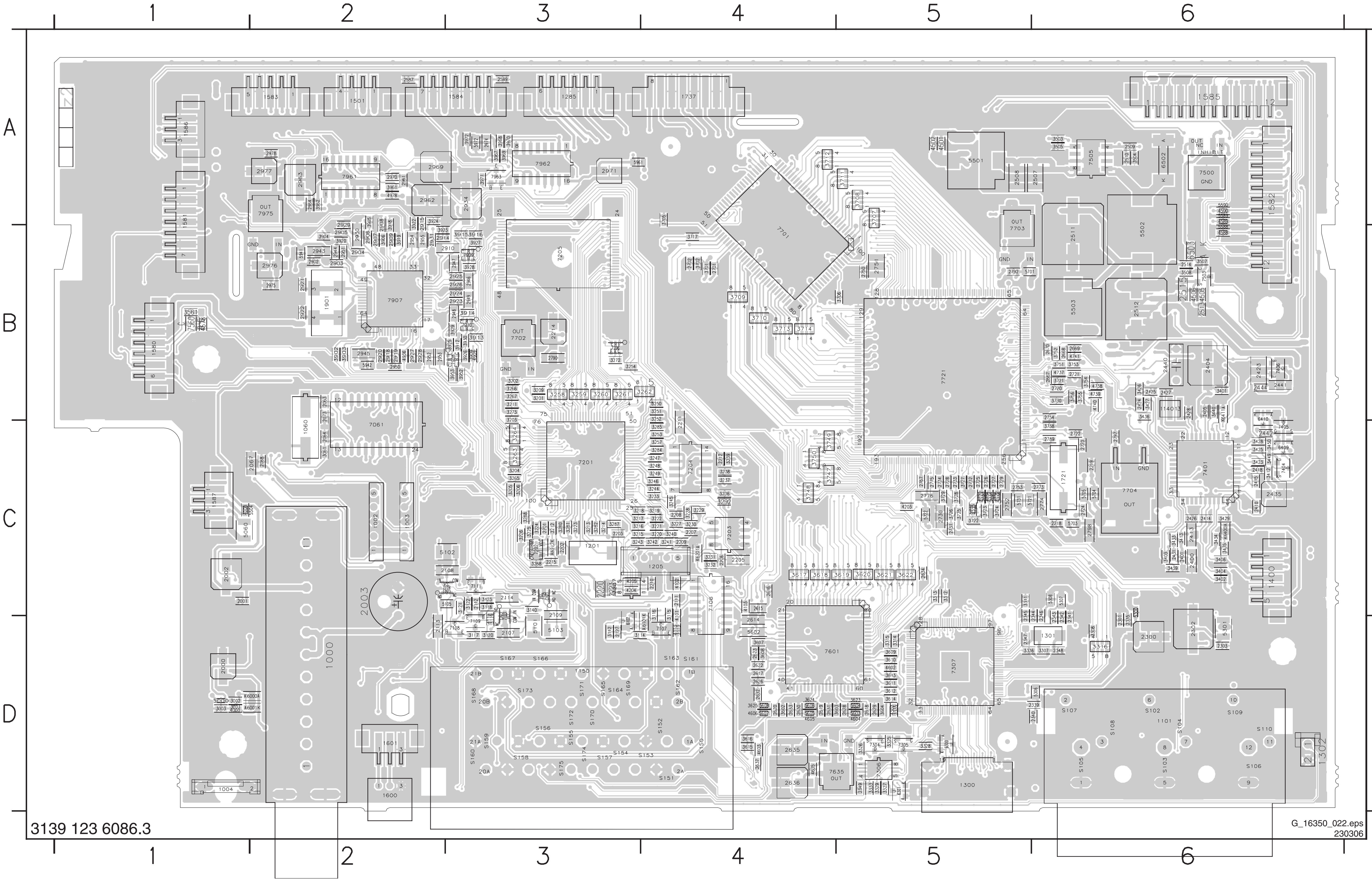
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1003	C2	1501	A2	1901	B2	2111	C4	2210	C4	2335	D6	2401	C6	2428	B6
1004	D1	1580	B1	2000	D1	2112	C3	2211	C4	2339	D6	2404	B6	2431	C6
1060	C2	1581	A1	2001	C1	2113	D2	2212	C4	2340	D6	2405	B6	2435	C6
1101	D6	1582	A6	2002	C1	2114	C3	2214	B3	2341	D6	2410	C6	2440	B6
1150	D3	1583	A2	2003	C2	2127	D3	2215	C3	2342	D6	2413	C6	2441	B6
1201	C3	1584	A3	2063	B2	2201	C3	2218	C6	2343	D6	2414	C6	2442	C6
1205	C4	1585	A6	2064	C2	2202	C3	2219	C6	2344	D6	2415	C6	2444	B6
1285	A3	1586	A1	2067	C2	2203	C3	2220	C3	2345	D5	2418	C6	2507	A6
1300	D5	1587	C1	2068	C2	2205	C4	2223	C3	2346	D6	2423	B6	2508	A5
1301	D6	1600	D2	2073	B2	2206	C4	2300	D6	2347	D5	2424	B6	2509	A6
1302	D6	1601	D2	2107	D3	2207	C4	2301	D6	2348	D6	2425	B6	2510	A6

2511	B6	2620	D4	2637	D4	2726	C5	2754	B6	2904	B2	2922	B2	2945	B2
2512	B6	2622	D4	2667	B6	2727	C5	2767	C5	2905	B2	2923	B3	2946	B3
2513	B6	2623	D4	2668	B6	2728	C5	2773	C6	2906	B2	2924	B3	2947	B3
2514	B6	2626	D4	2669	B6	2729	C5	2774	C6	2907	B2	2925	B3	2948	B3
2515	B6	2628	D5	2670	B6	2730	C5	2775	C5	2908	B2	2926	B3	2949	B3
2587	A2	2629	D5	2701	B4	2731	C5	2776	C5	2909	B2	2927	B2	2950	B2
2589	A3	2630	D4	2702	B4	2732	C5	2789	C6	2910	B3	2928	B2	2951	B2
2614	D4	2631	D4	2720	B6	2733	C5	2790	B3	2914	B2	2929	A2	2952	B2
2615	C4	2632	D4	2721	B6	2734	C5	2792	B5	2915	A2	2930	B2	2953	B2
2616	C4	2633	D4	2722	C6	2750	B5	2797	C6	2918	B2	2931	B2	2954	B2
2617	D4	2634	C5	2723	C6	2751	B5	2798	C6	2919	B2	2934	A3	2955	B2
2618	D5	2635	D4	2724	C6	2752	C5	2902	B2	2920	B2	2943	B2	2961	A2
2619	D4	2636	D4	2725	C5	2753	C5	2903	B2	2921	B2	2944	B2	2962	A2

2963	A2	3061	C2	3140	C3	3216	C3	3229	C4	3244	C4	3259	B3	3281	C3
2964	A2	3112	D3	3201	B3	3217	C3	3230	C4	3245	C4	3260	B3	3282	C3
2969	A2	3113	D4	3202	B3	3218	C3	3231	C4	3246	C4	3261	B3	3284	C4
2970	A2	3114	D3	3203	B3	3219	C4	3232	C4	3247	C4	3262	B4	3285	C4
2971	A3	3115	C4	3204	C3	3220	C4	3233	C4	3248	C4	3263	C3	3287	C3
2974	A3	3116	C4	3205	C3	3221	C4	3236	C4	3249	C4	3264	C3	3288	C3
2975	B2	3117	D3	3206	C3	3222	C4	3237	C4	3250	B4	3265	C3	3292	C4
2976	B2	3118	C3	3209	B3	3223	C3	3238	C4	3251	B4	3266	B3	3307	D6
2977	A2	3119	D3	3211	B3	3224	C3	3239	C4	3252	B4	3267	B3	3308	D6
2978	A2	3120	D3	3212	C3	3225	C3	3240	C4	3253	C4	3268	C3	3311	C5
3001	D1	3121	C3	3213	C3	3226	C3	3241	C4	3254	B3	3272	B3	3312	C5
3002	D1	3122	C3	3214	C3	3227	C4	3242	C4	3257	C4	3273	B3	3313	C5
3003	D1	3123	C3	3215	C3	3228	C4	3243	C3	3258	B3	3280	C3	3314	D5

3315	D5	3404	C6	3436	B6	3604	D5	3619	C5	3709	B4	3727	C5	3755	B6	5605	D4
3316	D6	3406	C6	3439	C6	3607	D4	3620	C5	3710	B4	3728	C5	3756	B6	5606	D4
3325	D5	3412	C6	3440	B6	3608	D4	3621	C5	3711	A5	3729	C5	3902	B2	5607	D4
3326	D5	3413	C6	3449	C6	3609	D5	3622	C5	3712	A4	3730	B6	3903	B2	5608	D4
3327	D5	3423	C6	3450	C6	3610	D5	3623	D5	3713	B4	3738	C6	3904	B2	5701	B5
3328	D5	3425	C6	3503	A6	3611	D5	3624	D4	3714	B4	3747	C4	3905	A2	5703	C6
3329	D5	3426	B6	3504	A6	3612	D5	3625	D4	3717	B4	3748	C4	3906	B2	5704	C6
3333	D5	3427	B6	3505	A6	3613	D5	3701	B4	3721	B6	3749	C4	3909	B3	5705	C6
3335	D5	3428	C6	3507	B6	3614	D5	3702	B4	3722	C5	3750	C4	3912	B3	5721	C5
3336	D5	3429	C6	3508	B6	3615	D4	3705	A4	3723	C5	3751	B6	3913	B3	5722	C5
3401	B6	3433	C6	3561	B1	3616	D4	3706	B5	3724	C5	3752	B6	3914	B3	5731	C5
3402	C6	3434	C6	3602	D4	3617	C4	3707	A5	3725	C5	3753	B6	3915	B3	5732	C5
3403	C6	3435	C6	3603	D5	3618	C4	3708	A5	3726	C5	3754	B6	3916	B3	5733	C5

3918	B2	5734	C5
3919	B2	5736	C5
3920	B2	5941	B2
3922	A2	5942	B2
3923	B2	5961	A3
3924	A2	5972	A3
3925	B3	6000	D2
3926	B3	6001	D2
3927	B3	6101	D4
3928	B3	6102	D3
3929	B3	6201	C4
3930	B3	6212	C3
3952	B3	6300	D5
3953	B3	6301	D5
3961	A2	6400	C6
3962	A2	6409	C6
3967	A3	6410	B6
3968	A3	6411	B6
3969	A3	6502	A6
3970	A3	6503	B6
3971	A3	7061	C2
3972	A3	7103	D3
4000	D1	7104	C3
4008	C1	7105	C3
4101	C4	7106	C4
4102	C4	7107	D4
4103	C4	7108	D3
4113	D4	7109	D3
4119	D3	7111	C3
4203	C5	7201	C3
4204	C3	7202	C3
4205	C3	7203	C4
4302	D5	7204	C4
4501	A5	7205	B3
4502	A5	7206	B3
4505	B6	7207	C3
4506	B6	7304	D5
4578	B1	7305	D5
4588	B6	7306	D5
4589	A6	7307	D5
4590	A6	7401	C6
4602	D5	7404	C6
4603	D4	7405	C6
4604	D5	7406	B6
4605	D4	7500	A6
4606	D4	7503	B6
4635	D4	7505	A6
4732	C5	7560	B1
4733	C5	7601	D4
4734	C5	7635	D5
4736	C5	7701	B4
4737	B6	7702	B3
4738	B6	7703	B5
4739	B6	7704	C6
4740	B6	7721	B5
4741	B6	7907	B2
4909	B3	7908	B3
4936	B2	7909	B3
4978	A2	7910	B3
5000	D1	7961	A2
5060	C1	7962	A3
5101	D3	7963	A3
5102	C3	7975	A2
5103	D3		
5105	C3		
5300	C6		
5301	D6		
5306	D6		
5307	C6		
5308	C6		
5501	A5		
5502	B6		
5503	B6		
5504	C2		
5588	B6		
5589	A6		
5590	A6		
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5603	D5		
5604	D5		



Layout SSB (Bottom Side)

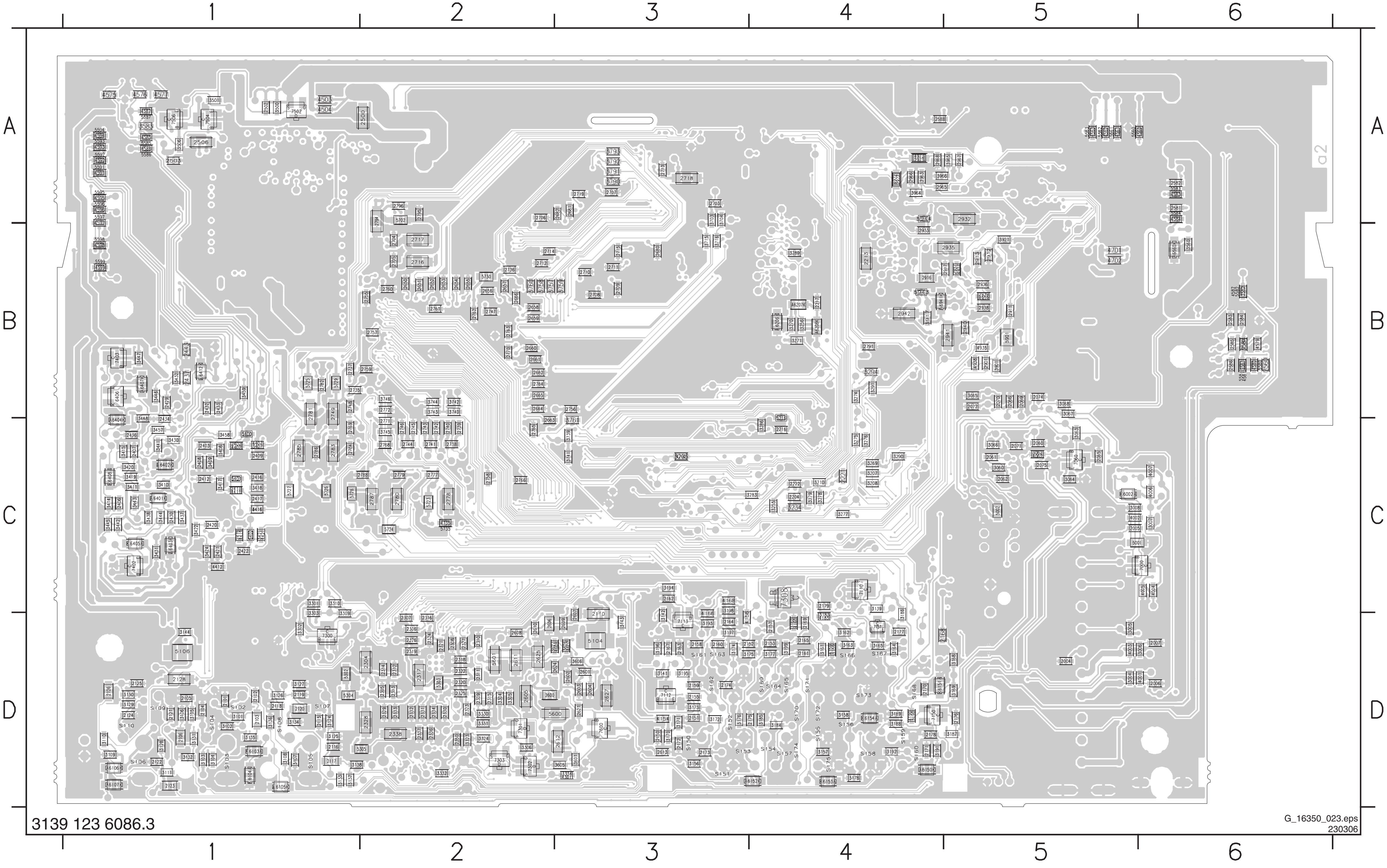
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2006	D6	2103	D1	2125	D1	2164	D3	2204	C4	2313	D2	2328	D2	2408	C1
2007	D6	2104	D1	2126	D1	2165	D4	2213	B4	2314	D2	2329	D2	2409	C1
2060	C5	2105	D1	2128	D1	2167	D3	2216	C4	2315	D2	2330	D2	2411	C1
2061	C5	2106	D1	2150	D3	2168	D4	2217	B4	2316	D2	2331	D2	2412	C1
2062	C5	2110	D3	2151	D3	2169	D4	2221	C4	2317	D2	2332	D2	2416	C1
2065	C5	2115	D1	2152	D3	2170	D4	2222	C4	2318	D2	2333	D2	2417	C1
2066	B5	2116	D1	2153	D4	2171	D4	2304	D2	2319	D2	2334	D2	2419	C1
2069	B5	2117	D1	2155	D3	2172	D3	2305	D2	2320	D2	2336	D2	2420	C1
2070	B5	2118	D1	2157	D4	2173	D3	2306	D2	2321	D2	2337	D2	2421	C1
2071	C5	2119	D1	2158	D3	2174	D3	2307	D2	2322	D2	2338	D2	2422	C1
2072	B5	2120	D1	2159	D3	2175	D4	2308	D2	2323	D2	2350	D2	2429	B1
2074	B5	2121	D1	2160	D3	2176	D5	2309	D2	2324	D2	2402	C1	2430	C1
2075	C5	2122	D1	2161	D4	2177	D4	2310	D2	2325	D2	2403	C1	2432	B1

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2436	C1	2588	A4	2621	D3	2661	B2	2709	B3	2739	C2	2759	B2	2779	C2
2437	B1	2600	D2	2624	D3	2662	B2	2710	B3	2740	C2	2760	B2	2780	C2
2443	B1	2601	D3	2625	D2	2663	C2	2711	B3	2741	C2	2761	B2	2781	B1
2500	A2	2602	D3	2627	D3	2664	B2	2712	B2	2742	C2	2762	B2	2782	B1
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2503	A1	2604	D3	2651	B2	2666	B2	2714	B2	2744	C2	2764	B2	2784	C1
2506	A1	2605	D2	2652	B2	2680	B3	2715	B3	2745	C2	2765	C2	2785	C1
2560	B6	2606	D2	2653	B2	2681	A3	2716	B2	2746	C2	2766	C2	2786	C1
2580	B6	2607	D3	2654	B2	2682	A3	2717	B2	2747	B2	2768	C2	2787	C2
2581	A6	2608	D2	2655	B2	2703	A3	2718	A3	2748	B1	2769	C1	2788	C2
2582	A6	2609	D3	2656	B2	2704	B2	2719	A3	2749	B1	2770	B2	2791	B4
2583	B6	2610	D2	2657	B2	2705	B2	2735	B1	2755	B2	2771	C2	2794	A2
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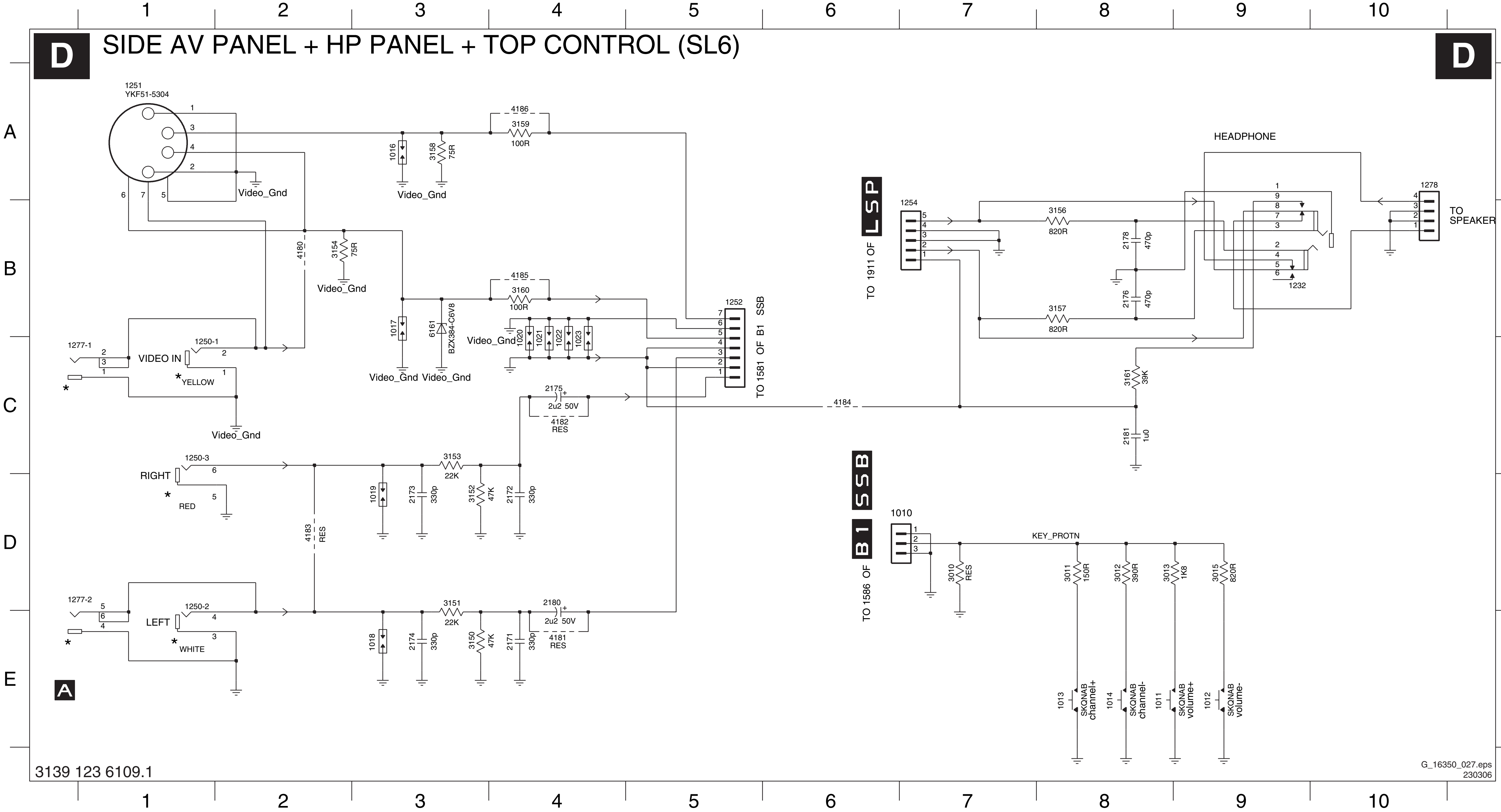
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2911	B5	2965	A4	3065	B5	3124	D1	3139	C4	3168	D5	3187	D5	3210	C4
2912	B5	2966	A4	3066	C5	3125	D1	3141	D3	3169	D5	3188	D4	3234	C4
2913	B5	2967	A5	3067	B5	3126	D1	3142	D3	3170	D3	3189	D4	3255	C4
2916	B4	2968	A4	3068	B5	3127	D1	3143	D3	3171	D3	3190	D4	3256	B4
2917	B5	2972	A4	3101	D1	3128	D1	3144	D1	3172	D3	3191	D4	3269	C4
2932	A5	2973	A4	3102	D1	3129	D1	3156	D3	3173	D3	3192	D4	3270	B4
2933	B4	3004	D5	3103	D1	3130	D1	3157	D4	3174	D3	3193	D3	3271	B4
2935	B5	3005	D5	3104	D1	3131	D1	3158	D4	3175	D3	3194	C3	3274	B4
2936	B5	3006	D6	3105	D1	3132	D1	3159	D4	3176	D3	3195	D3	3275	C4
2937	B5	3007	C6	3106	D1	3133	D1	3160	D4	3177	D4	3196	D3	3276	C4
2938	B5	3008	C5	3107	D1	3134	D1	3161	D4	3178	D4	3197	D3	3277	C4
2939	B5	3060	C5	3108	D1	3135	D1	3162	D4	3183	D4	3198	C3	3278	C4
2940	B5	3062	C5	3109	D1	3136	D1	3163	D4	3184	D4	3199	D4	3279	C4

3283	C4	3323	D2	3418	C1	3445	C1	3601	D3	3745	C2	3964	A4
3286	C4	3324	D2	3419	C1	3446	B1	3605	D3	3746	B2	3965	A5
3289	B4	3330	D2	3420	C1	3447	B1	3606	D3	3757	B2	3966	A4
3290	C4	3331	D2	3421	C1	3448	C1	3626	D3	3758	B2	4001	D6
3291	B4	3332	D2	3422	C1	3457	C1	3627	D2	3759	B3	4002	C5
3293	C3	3334	D3	3424	C1	3458	C1	3703	A3	3760	B2	4003	D5
3294	B4	3407	C1	3430	C1	3459	B1	3704	A3	3761	C3	4004	C6
3301	C1	3408	C1	3431	C1	3500	A1	3715	B3	3790	A3	4005	C6
3302	D1	3409	C1	3432	B1	3501	A1	3716	B3	3791	A3	4006	C6
3303	D1	3410	C1	3437	C1	3506	A1	3739	C3	3792	A3	4007	C6
3304	D2	3411	C1	3438	C1	3560	B6	3740	B2	3793	A3	4062	C5
3305	D2	3414	C1	3441	C1	3581	B6	3741	C3	3901	B5	4154	D3
3306	D2	3415	C1	3442	C1	3582	B6	3742	B2	3917	B4	4156	D3
3309	D1	3416	C1	3443	C1	3583	A1	3743	B2	3921	B5	4159	D4
3310	C1	3417	C1	3444	C1	3584	B6	3744	B2	3963	A4	4160	D4

4166	D3	5729	B1
4168	C3	5730	B2
4183	D4	5735	C2
4190	D4	5901	B5
4202	C3	5943	B4
4301	D3	5944	A4
4402	C1	6002	C5
4407	C1	6103	D1
4411	C1	6104	D1
4412	C1	6105	D1
4416	C1	6106	D1
4419	C1	6107	D1
4421	C1	6150	D4
4503	A1	6151	D4
4504	A1	6152	D4
4560	A6	6153	D4
4561	A5	6154	D4
4562	A5	6206	B4
4563	A5	6207	B4
4575	A1	6208	B4
4576	A1	6401	C1
4577	A1	6402	C1
4579	B6	6403	C1
4580	B6	6404	C1
4581	B6	6405	C1
4582	B6	6406	B1
4583	A6	6407	B1
4584	A6	6408	C1
4585	A1	6412	B1
4586	A1	6560	B6
4587	A1	6941	B4
4591	A1	7000	C6
4592	A1	7060	C5
4593	A1	7110	C4
4594	A1	7112	D3
4595	A1	7113	D3
4596	A1	7150	D4
4597	A1	7151	D4
4598	B1	7300	D1
4599	B1	7301	D2
4607	D3	7302	D2
4608	D3	7303	D2
4701	B5	7308	C4
4702	B5	7402	C1
4735	C2	7403	B1
4935	B5	7502	A1
4937	B5	7504	A1
4938	B5	7506	A1
4939	B5	7600	D3
4972	A4	S102	D1
4973	A4	S103	D1
5001	C5	S104	D1
5002	C5	S105	D1
5104	D3	S106	D1
5106	D1	S107	D1
5216	C4	S108	D1
5302	D1	S109	D1
5303	D2	S110	D1
5304	D1	S150	D3
5305	D2	S151	D3
5400	C1	S152	D3
5401	C1	S153	D3
5402	C1	S154	D4
5560	A5	S155	D4
5561	A5	S156	D4
5562	A5	S157	D4
5563	A5	S158	D4
5580	B6	S159	D4
5581	B6	S160	D4
5582	B6	S161	D3
5583	A6	S162	D3
5584	A6	S163	D3
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5594	A1	S170	D4
5595	A1	S171	D4
5596	A1	S172	D4
5597	A1	S173	D4
5598	B1	S174	D4
5599	B1	S175	D4
5600	D3		
5601	D2		
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5724	C2		
5725	B1		
5726	C1		
5727	C1		
5728	C1		

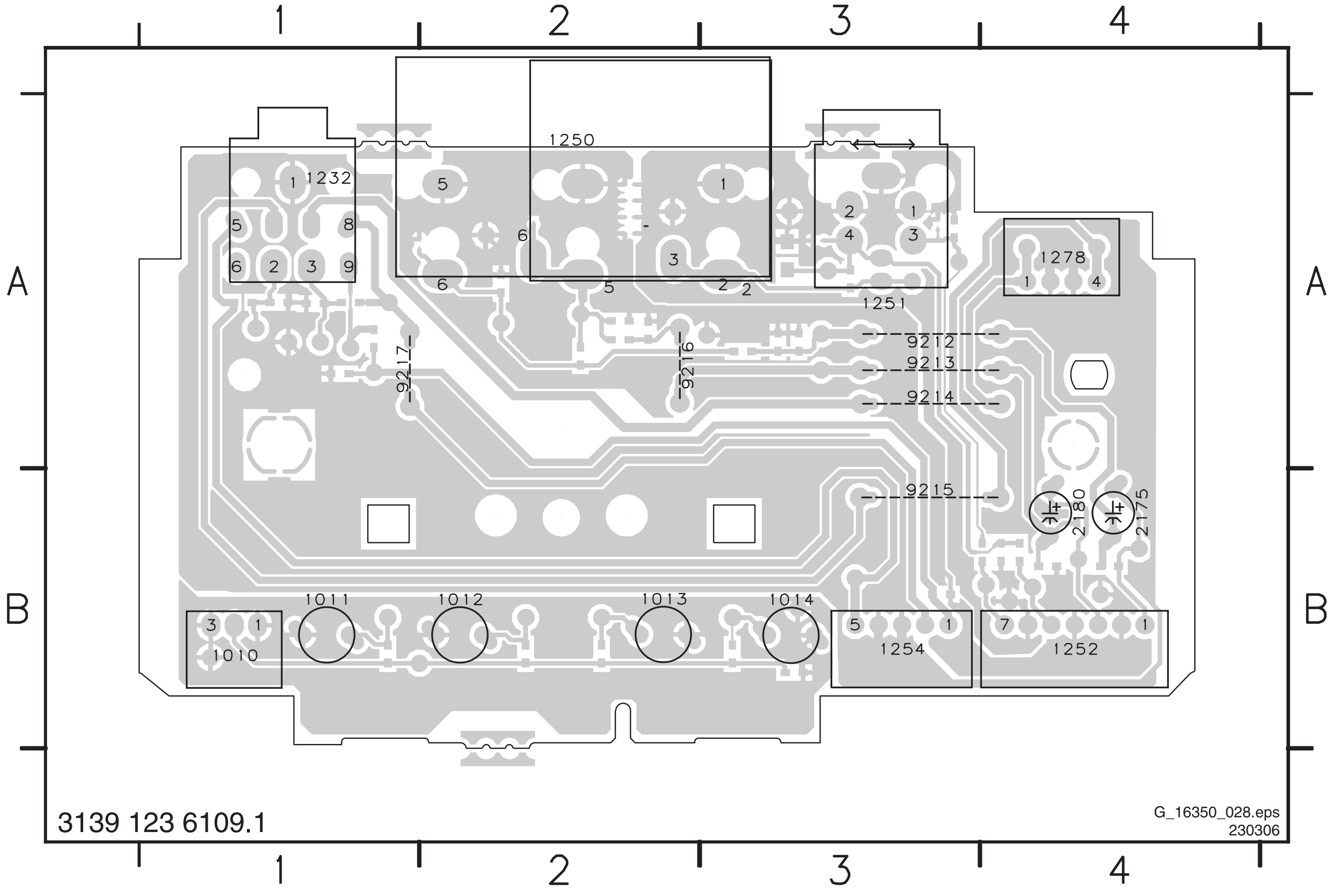


Side I/O Panel (SL6)



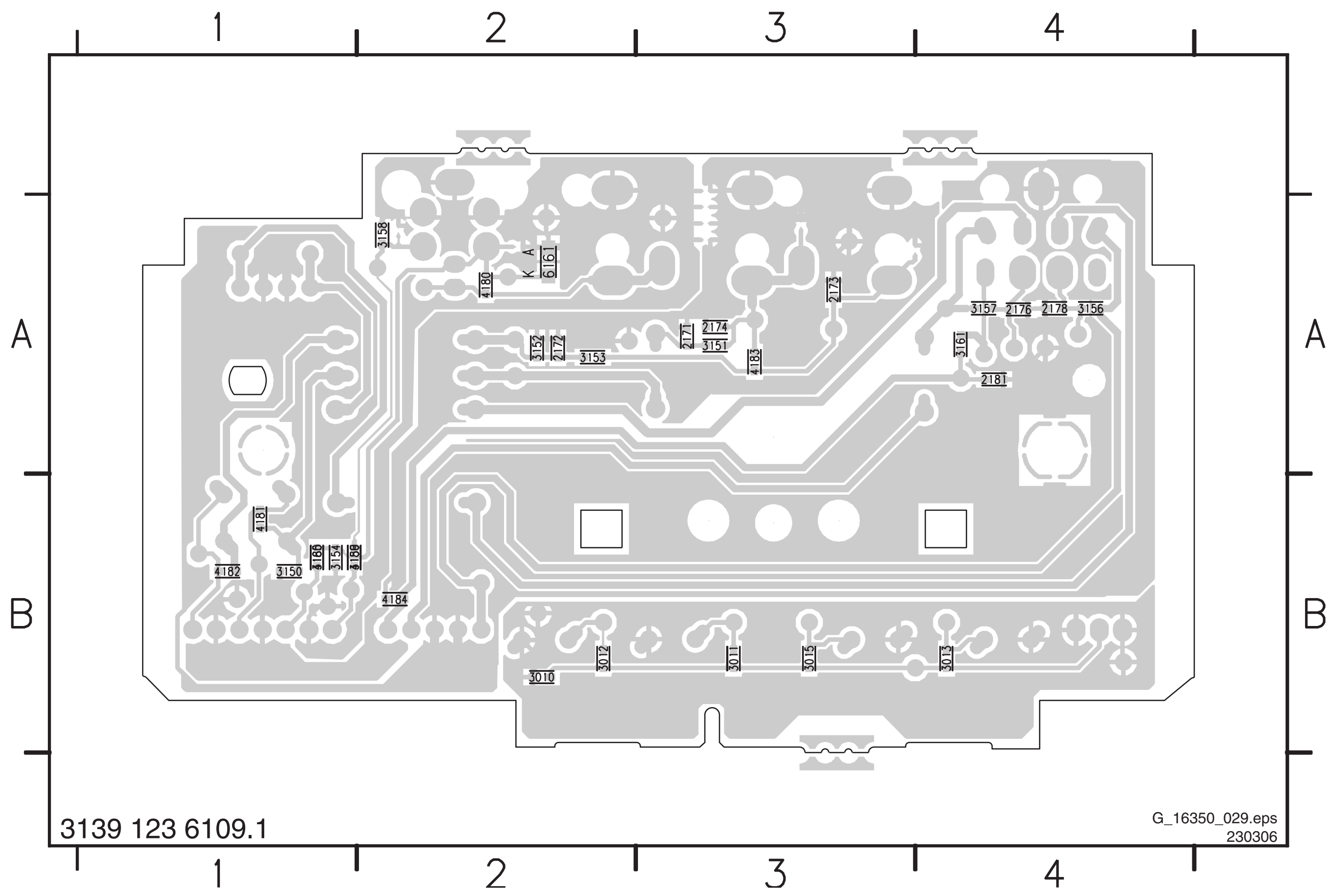
1010 D6
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1012 E9
1013 E8
1014 E8
1016 A3
1017 B3
1018 E3
1019 D3
1020 C4
1021 C4
1022 C4
1023 C4
1232 B9
1250-1 C1
1250-2 D1
1250-3 C1
1251 A1
1252 B5
1254 A7
1277-1 C1
1277-2 D1
1278 A10
2171 E4
2172 D4
2173 D3
2174 E3
2175 C4
2176 B8
2178 B8
2180 D4
2181 C8
3010 D7
3011 D8
3012 D8
3013 D8
3015 D9
3150 E3
3151 D3
3152 D3
3153 C3
3154 B2
3156 B8
3157 B8
3158 A3
3159 A4
3160 B4
3161 C8
4180 B2
4181 E4
4182 C4
4183 D2
4184 C6
4185 B4
4186 A4
6161 B3

Layout Side I/O Panel (SL6) (Top Side)



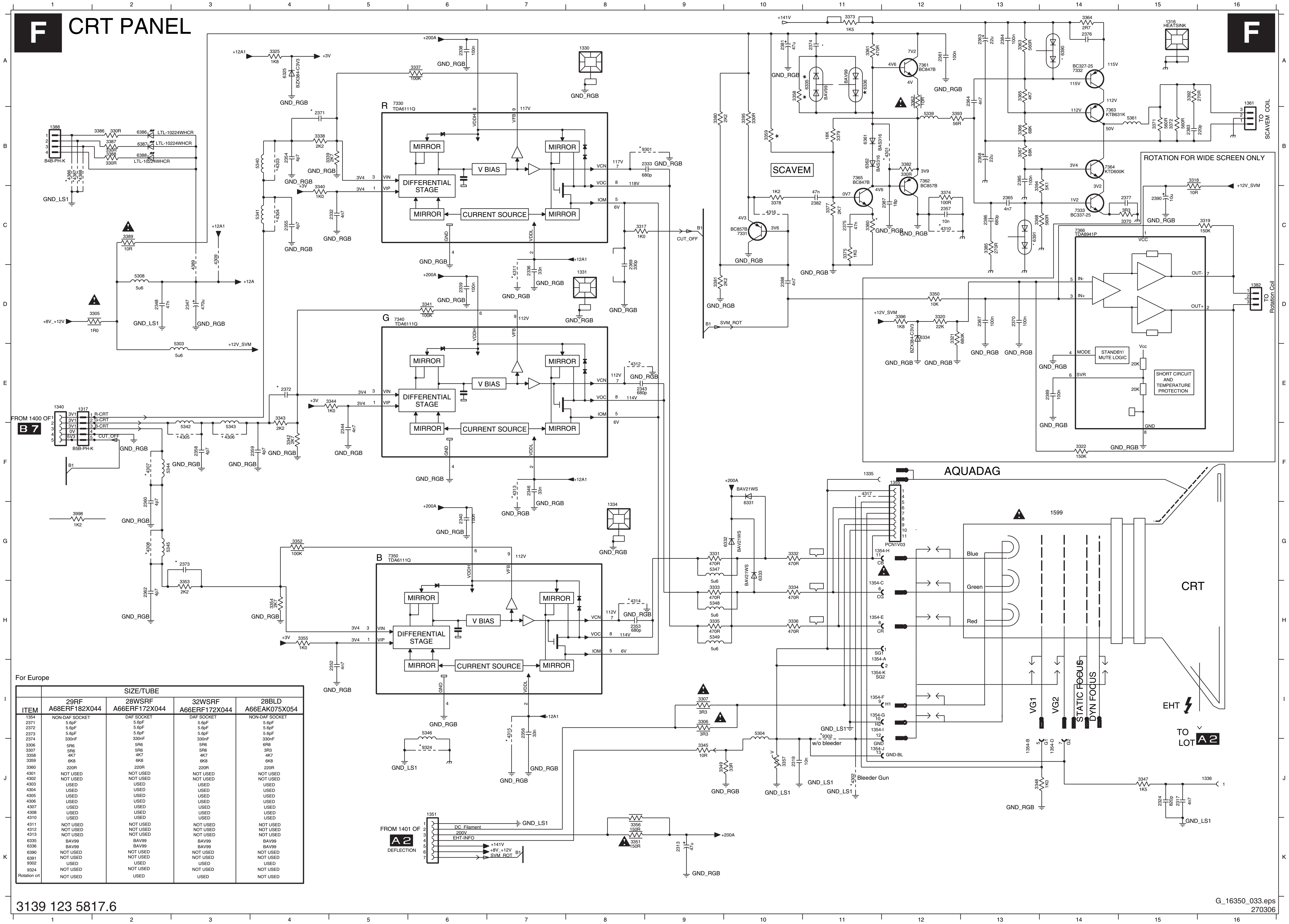
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1014	B3
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1250	A2
1251	A3
1252	B4
1254	B3
1277	A2
1278	A4
2175	B4
2180	B4
9212	A3
9213	A3
9214	A3
9215	B3
9216	A2
9217	A1

Layout Side I/O Panel (SL6) (Bottom Side)



2171	A3
2172	A2
2173	A3
2174	A3
2176	A4
2178	A4
2181	A4
3010	B2
3011	B3
3012	B2
3013	B4
3015	B3
3150	B1
3151	A3
3152	A2
3153	A2
3154	B1
3156	A4
3157	A4
3158	A2
3159	B1
3160	B1
3161	A4
4180	A2
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4182	B1
4183	A3
4184	B2
4185	B1
4186	B1
6161	A2

CRT Panel



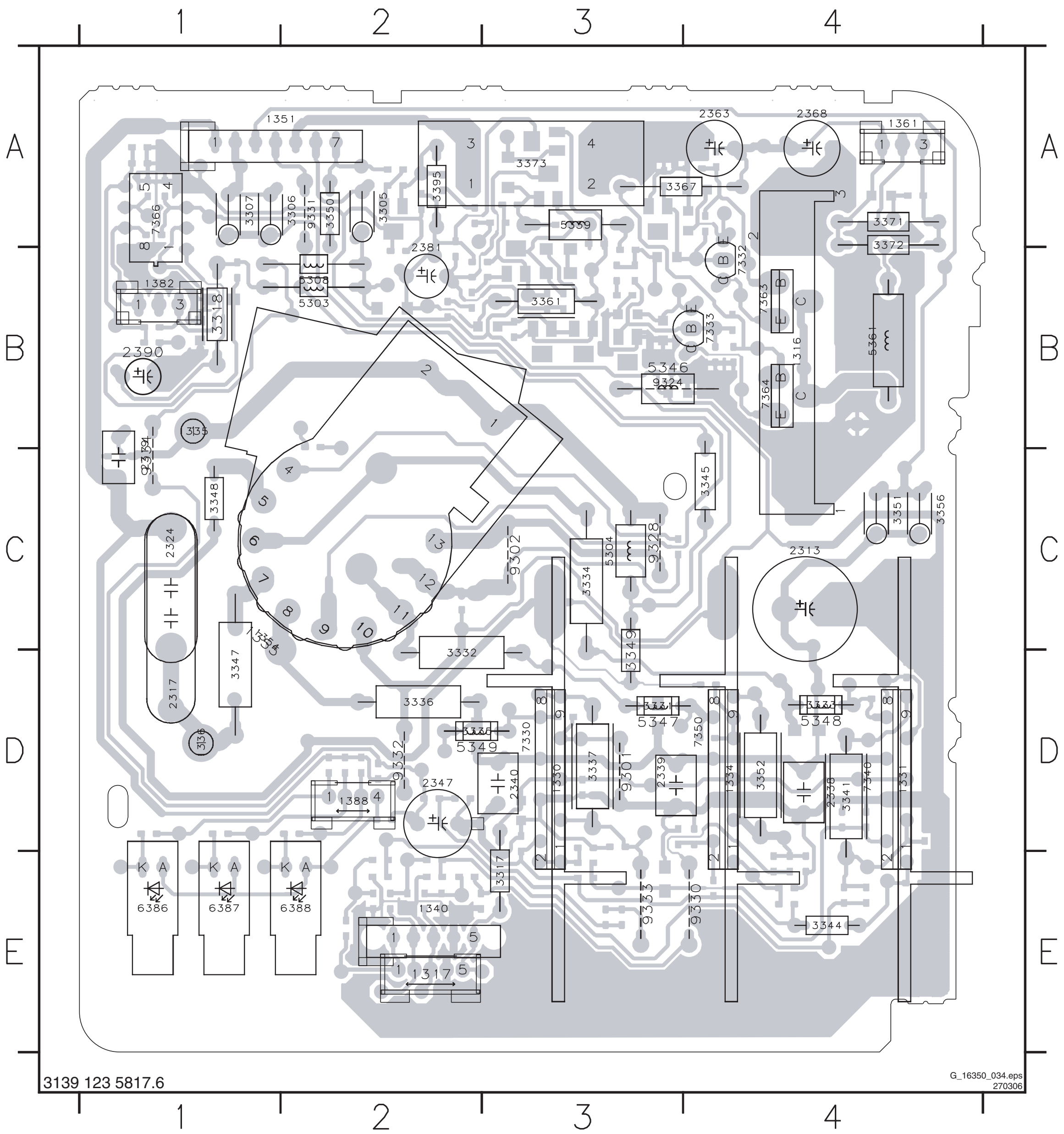
For Europe

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2371	5.6pF	5.6pF	5.6pF	5.6pF
2372	5.6pF	5.6pF	5.6pF	5.6pF
2373	5.6pF	5.6pF	5.6pF	5.6pF
2374	330nF	330nF	330nF	330nF
3306	5R6	5R6	5R6	6R8
3307	5R6	5R6	5R6	3R3
3358	4K7	4K7	4K7	4K7
3359	6K8	6K8	6K8	6K8
3360	220R	220R	220R	220R
4301	NOT USED	NOT USED	NOT USED	NOT USED
4302	NOT USED	NOT USED	NOT USED	NOT USED
4303	USED	USED	USED	USED
4304	USED	USED	USED	USED
4305	USED	USED	USED	USED
4306	USED	USED	USED	USED
4307	USED	USED	USED	USED
4308	USED	USED	USED	USED
4310	USED	USED	USED	USED
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4312	NOT USED	NOT USED	NOT USED	NOT USED
4313	NOT USED	NOT USED	NOT USED	NOT USED
6335	BAV99	BAV99	BAV99	BAV99
6336	BAV99	BAV99	BAV99	BAV99
6390	NOT USED	NOT USED	NOT USED	NOT USED
6391	NOT USED	NOT USED	NOT USED	NOT USED
9302	USED	USED	USED	USED
9324	NOT USED	NOT USED	NOT USED	NOT USED
Rotation crt	NOT USED	USED	USED	NOT USED

3139 123 5817.6

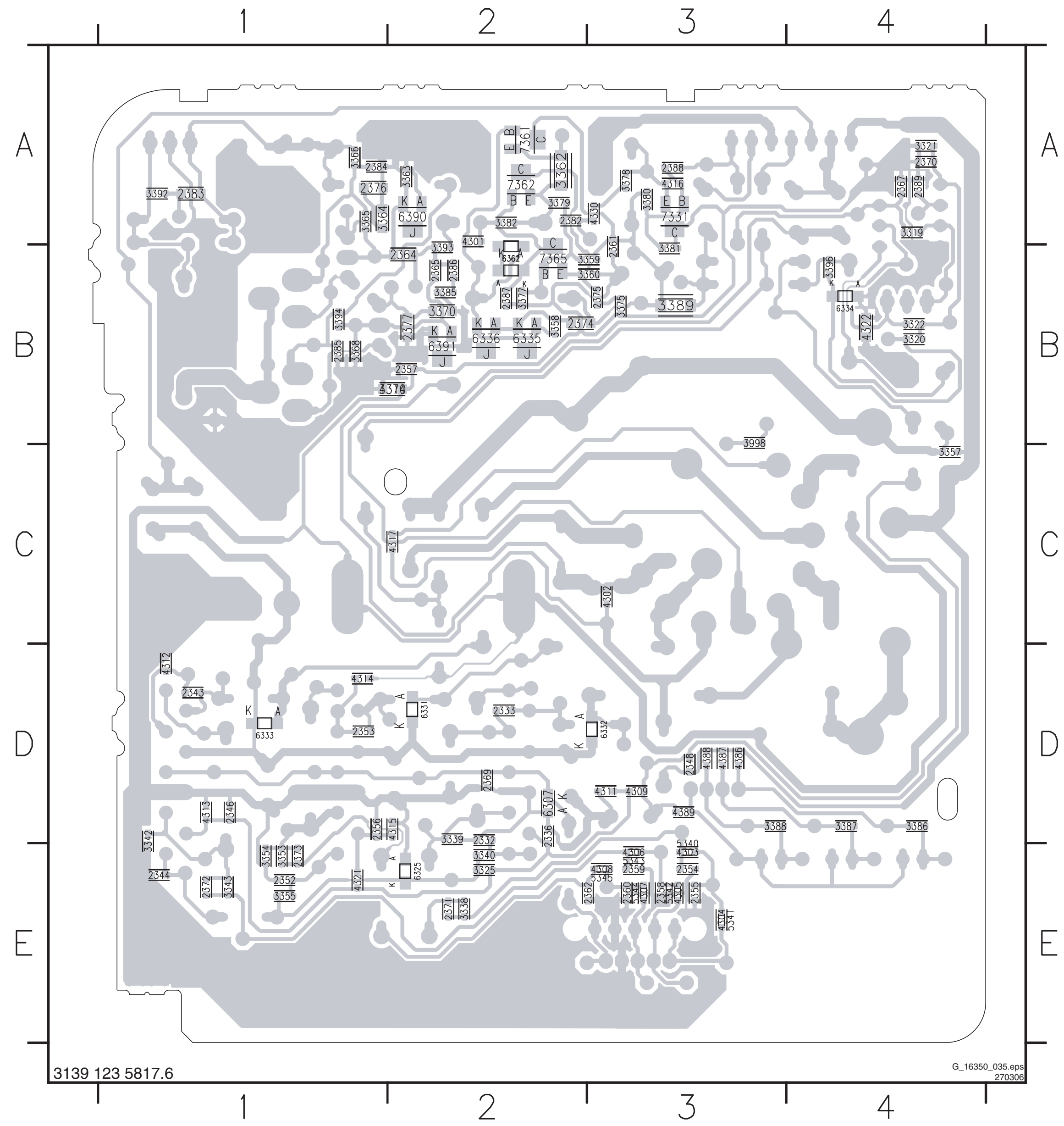
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1317 E1
1330 A8
1331 D8
1334 G8
1335 F11
1336 J16
1340 E1
1351 J6
1354-A I12
1354-B J13
1354-C H12
1354-D J14
1354-E H12
1354-F I12
1354-G I12
1354-H G12
1354-I I12
1354-J J12
1354-K I12
1355 F12
1361 A16
1382 D16
1388 B1
2313 K9
2317 J15
2319 J10
2324 J15
2332 C5
2333 B9
2336 D7
2338 A6
2339 D6
2340 G6
2343 E8
2344 F5
2346 F7
2347 D3
2348 D2
2352 I5
2353 H8
2354 B4
2355 C4
2356 I7
2357 C12
2358 F3
2359 F4
2360 G2
2361 A12
2362 H2
2363 A13
2364 A13
2365 C13
2367 D13
2368 B13
2369 C8
2370 D13
2371 B4
2372 E4
2373 G3
2374 A11
2375 C11
2376 A14
2377 C15
2381 A10
2382 C11
2383 B15
2384 A13
2385 B13
2386 C13
2387 C12
2388 D10
2389 E14
2390 C15
3305 D2
3306 I9
3307 I9
3317 C8
3318 B15
3319 C16
3320 D12
3321 D12
3322 F14
3325 A4
3331 G9
3332 G10
3333 H9
3334 H10
3335 H9
3336 H10
3337 A6
3338 B4
3339 B5
3340 C4
3341 D6
3342 F4
3343 E4
3344 E5
3345 J9
3347 J15
3348 J13
3349 J9
3350 D12
3351 K8
3352 G4
3353 H3
3354 H4
3355 H4
3356 K8
3357 J10
3358 A10
3359 B10
3360 C11
3361 A11
3362 A12
3363 A13
3364 A14
3365 A13
3366 B13
3367 B13
3368 C13
3370 C15
3371 B15
3372 B15
3373 A11
3374 C12
3375 C11
3377 C11
3378 C10
3379 B11
3380 B9
3381 D9
3382 B12
3385 C13
3386 B2
3387 B2
3388 B2
3389 C2
3392 A15
3393 B12
3394 C13
3395 B10
3396 D12
3998 G1
4301 B12
4302 J11
4303 B4
4304 C4
4305 F3
4306 F3
4307 F2
4308 G2
4309 C3
4310 C12
4311 D7
4312 E8
4313 F7
4314 H8
4315 I7
4316 C10
4317 F11
4386 B1
4387 B1
4388 B1
4389 D3
5303 E3
5304 I10
5308 D2
5339 B12
5340 B4
5341 C4
5342 F3
5343 F3
5344 F2
5345 G2
5346 I6
5347 G9
5348 H9
5349 H9
5361 B15
6325 A4
6331 F10
6332 G10
6333 G10
6334 D12
6335 A11
6336 A11
6361 B11
6362 B11
6386 B2
6387 B2
6388 B2
6390 A14
6391 C13
7330 A5
7331 C10
7332 A14
7333 C14
7340 D5
7350 G5
7361 A12
7362 B12
7363 B14
7364 B14
7365 B11
7366 C14
9301 B9
9302 I11
9324 J6

Layout CRT Panel (Top Side)



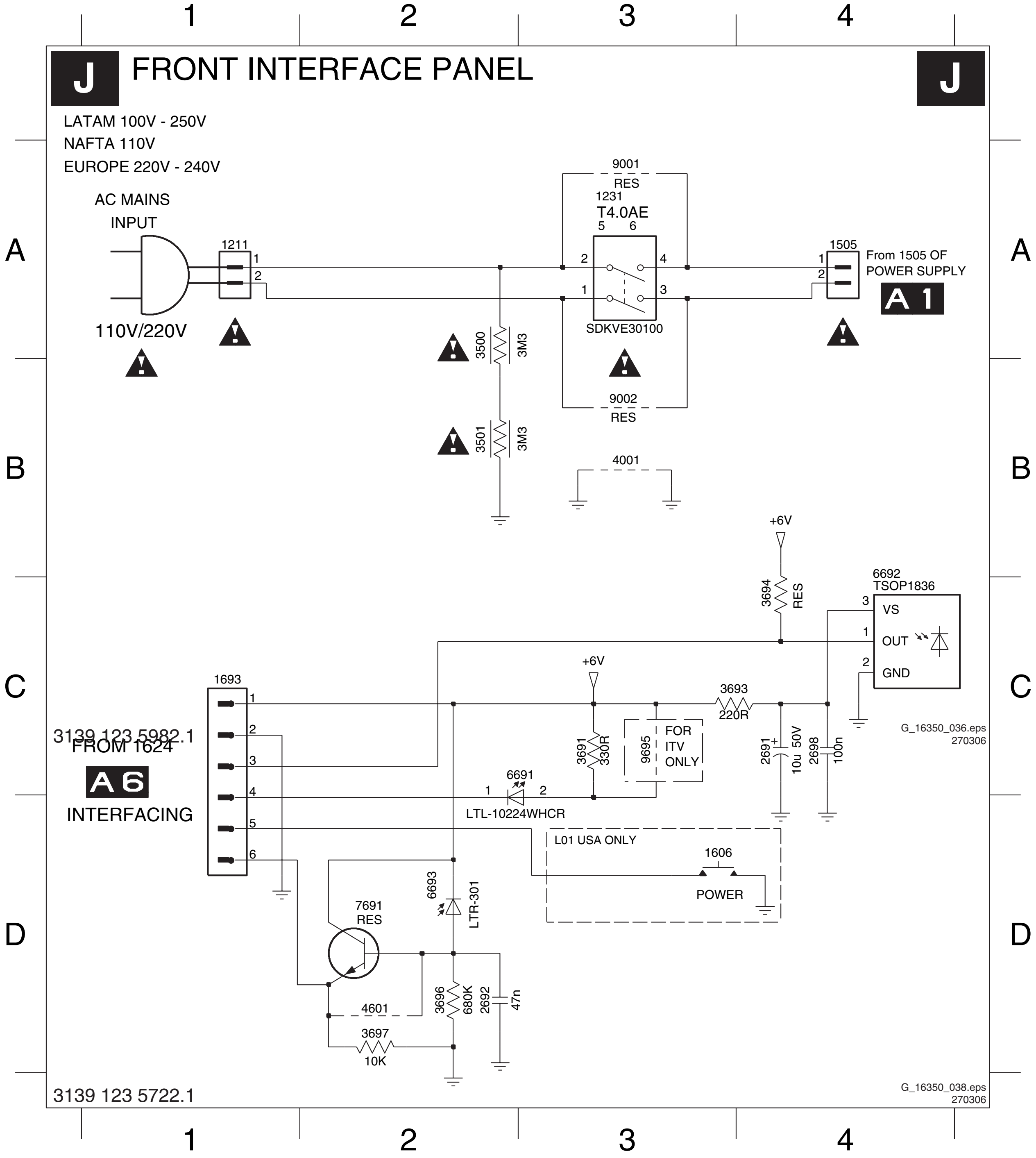
1316	B4
1317	E2
1330	D3
1331	D4
1334	D4
1335	B1
1336	D1
1340	E2
1351	A1
1354	C1
1355	C1
1361	A4
1382	B1
1388	D2
2313	C4
2317	D1
2319	C1
2324	C1
2338	D4
2339	D3
2340	D3
2347	D2
2363	A4
2368	A4
2381	B2
2390	B1
3305	A2
3306	A2
3307	A1
3317	E3
3318	B1
3331	D3
3332	D2
3333	D4
3334	C3
3335	D2
3336	D2
3337	D3
3341	D4
3344	E4
3345	C4
3347	D1
3348	C1
3349	D3
3350	A2
3351	C4
3352	D4
3356	C4
3361	B3
3367	A3
3371	A4
3372	A4
3373	A3
3395	A2
5303	B2
5304	C3
5308	B2
5339	A3
5346	B3
5347	D3
5348	D4
5349	D2
5361	B4
6386	E1
6387	E1
6388	E2
7330	D3
7332	B4
7333	B4
7340	D4
7350	D4
7363	B4
7364	B4
7366	A1
9301	D3
9302	C3
9324	B3
9328	C3
9330	E4
9331	A2
9332	D2
9333	E3
9334	C1

Layout CRT (Bottom Side)



2332	D2
2333	D2
2336	D2
2343	D1
2344	E1
2346	D1
2348	D3
2352	E1
2353	D1
2354	E3
2355	E3
2356	D1
2357	B2
2358	E3
2359	E3
2360	E3
2361	B3
2362	E3
2364	B2
2365	B2
2367	A4
2369	D2
2370	A4
2371	E2
2372	E1
2373	E1
2374	B2
2375	B3
2376	A1
2377	B2
2382	A2
2383	A1
2384	A1
2385	B1
2386	B2
2387	B2
2388	A3
2389	A4
3319	A4
3320	B4
3321	A4
3322	B4
3325	E2
3338	E2
3339	D2
3340	E2
3342	D1
3343	E1
3353	E1
3354	E1
3355	E1
3357	C4
3358	B2
3359	B3
3360	B3
3362	A2
3363	A2
3364	A1
3365	A1
3366	A1
3368	B1
3370	B2
3374	B2
3375	B3
3377	B2
3378	A3
3379	A2
3380	A3
3381	B3
3382	A2
3385	B2
3386	D4
3387	D4
3388	D3
3389	B3
3392	A1
3393	B2
3394	B1
3396	B4
3998	B3
4301	A2
4302	C3
4303	E3
4304	E3
4305	E3
4306	E3
4307	E3
4308	E3
4309	D3
4310	B2
4311	D3
4312	D1
4313	D1
4314	D1
4315	D2
4316	A3
4317	C2
4321	E1
4322	B4
4330	A3
4386	D3
4387	D3
4388	D3
4389	D3
5340	E3
5341	E3
5342	E3
5343	E3
5344	E3
5345	E3
6307	D2
6325	E2
6331	D2
6332	D3
6333	D1
6334	B4
6335	B2
6336	B2
6361	B2
6362	B2
6390	A2
6391	B2
7331	B2
7361	A2
7362	A2
7365	B2

Front Interface Panel (SL6)

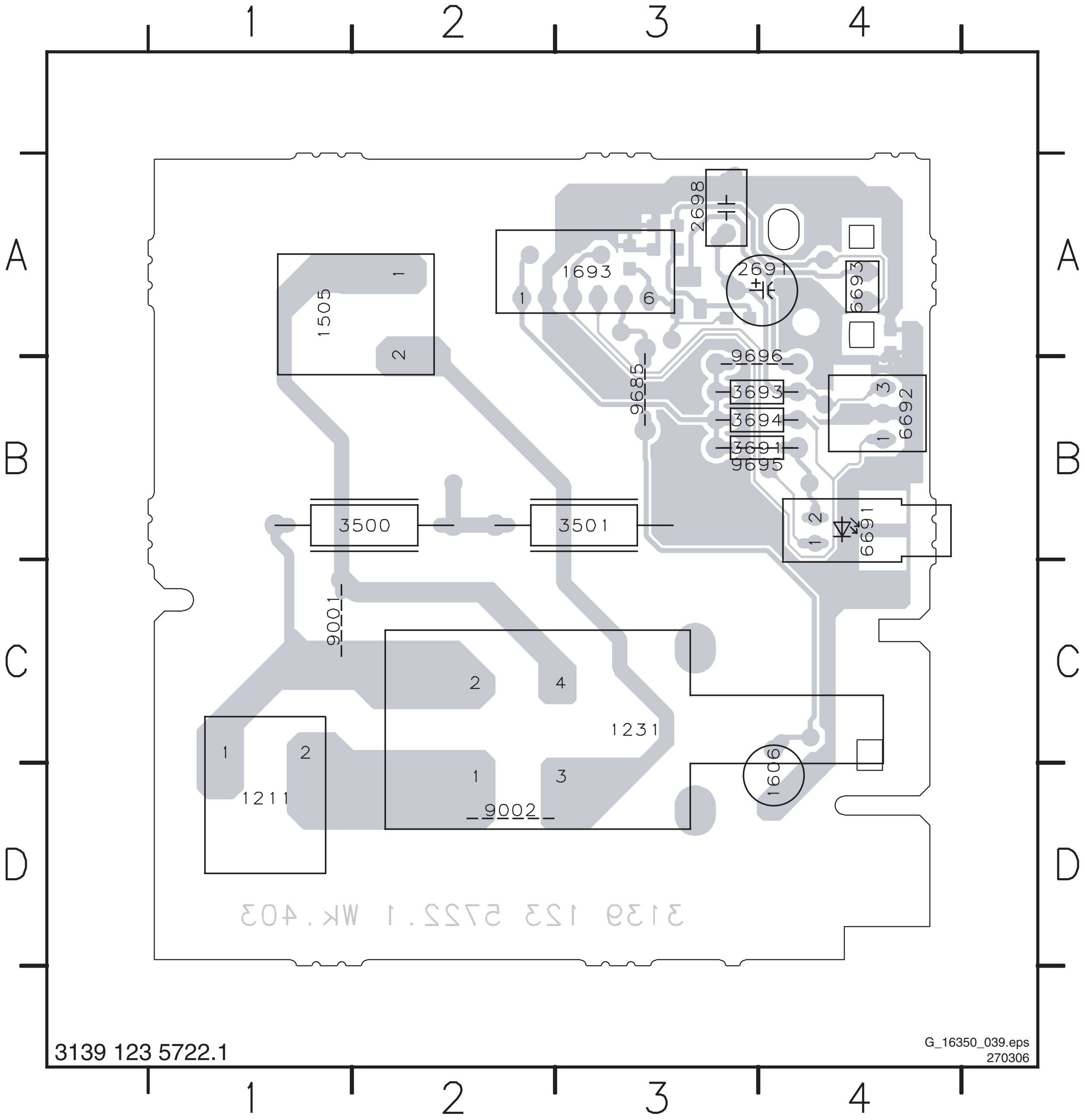


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1231	A3
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2692	D2
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3501	B2
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3693	C3
3694	C4
3696	D2
3697	D2
4001	B3
4601	D2
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6693	D2
7691	D2
9001	A3
9002	B3
9695	C3

Personal Notes:

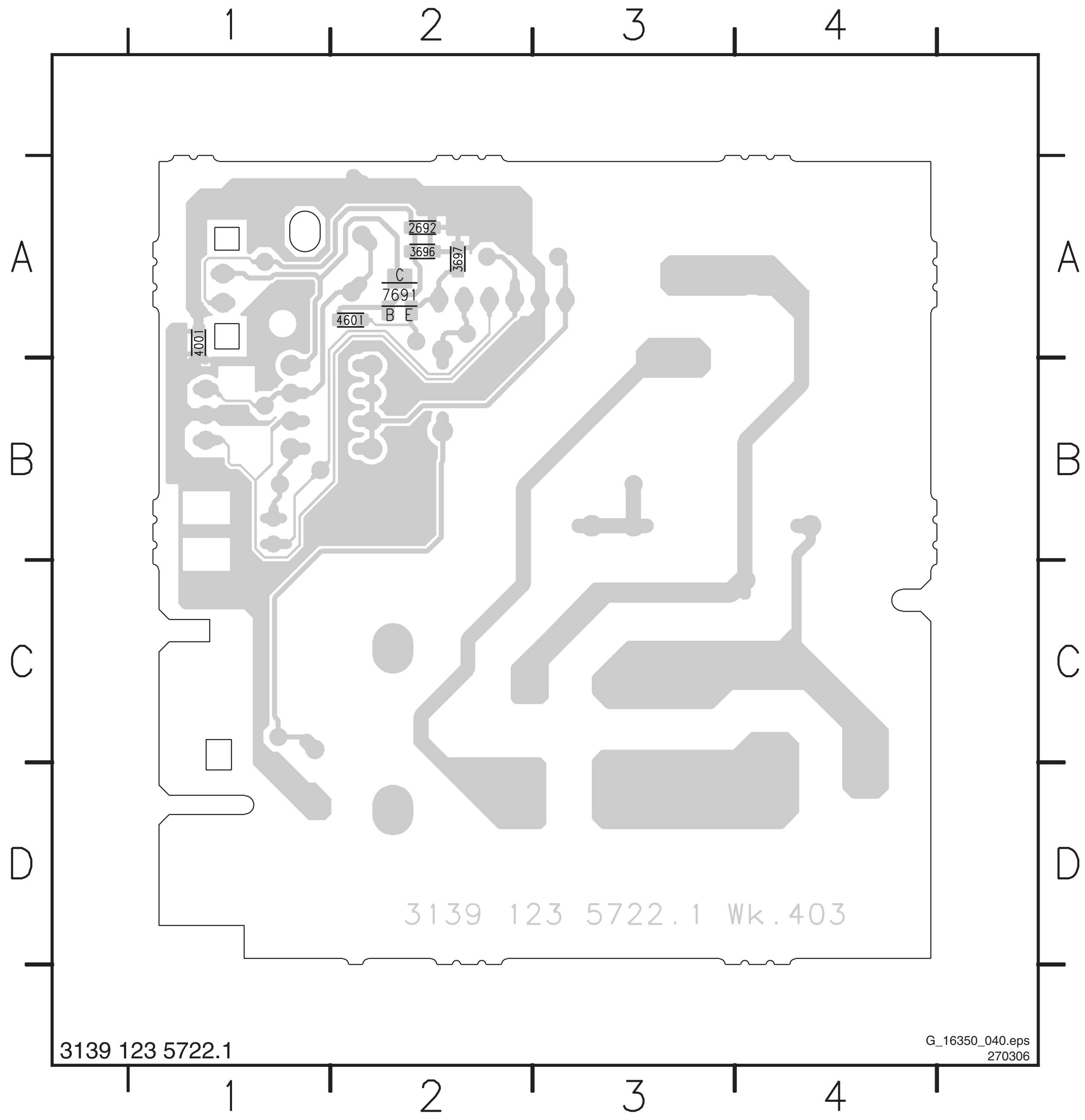
E_06532_012.eps
131004

Layout Front Interface Panel (SL6) (Top Side)



1211	D1
1231	C3
1505	A1
1606	D4
1693	A3
2691	A4
2698	A3
3500	B2
3501	B3
3691	B3
3693	B3
3694	B3
6691	B4
6692	B4
6693	A4
9001	C1
9002	D2
9685	B3
9695	B3
9696	A3

Layout Front Interface Panel (SL6) (Bottom Side)



2692	A2
3696	A2
3697	A2
4001	A1
4601	A2
7691	A2

8. Alignments

Index of this chapter:

8.1 General Alignment Conditions

8.1.1 Default Alignment Settings

Perform all electrical adjustments under the following conditions:

- Power supply voltage: 230 V_{AC} / 50 Hz (± 10 %).
- Connect the set to the mains via an isolation transformer with low internal resistance.
- Allow the set to warm up for approximately 20 to 30 minutes.
- Measure voltages and waveforms in relation to chassis ground (with the exception of the voltages on the primary side of the power supply).
  Caution: never use heatsinks as ground.
- Test probe: 100 : 1, Ri > 10 Mohm, Ci < 3.5 pF.
- Use an isolated trimmer/screwdriver to perform alignments.

Perform all electrical adjustments with the following default settings (for all CRTs):

- Choose "Soft" picture mode with the "Smart Picture" button on the remote control.
- Set "Dynamic Contrast" and "Active Control" to "off" (if either one of them is present).
- Set "Brightness" to aligned value unless otherwise specified.
- Set "Contrast value" to 99.

8.1.2 Adjustment Sequence

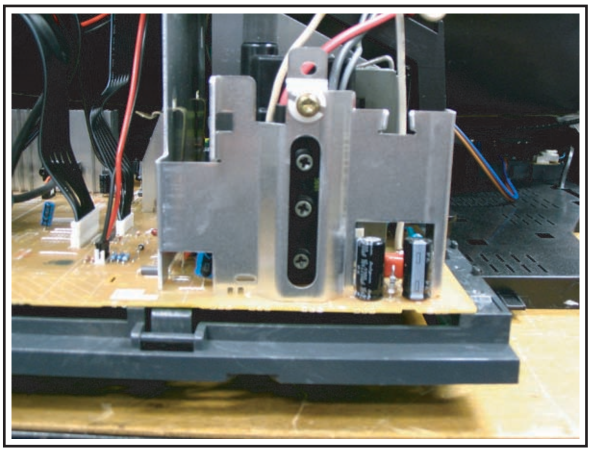
Use the following adjustment sequence:

1. Set the correct TV-set OPTIONS as described in paragraph "Options". After storing, re-start the set.
2. Rough adjustment of VG2 and FOCUS (potentiometers in “midway” positions; N.B.: wrong positions may cause error messages because of H or V-protection mechanism).
3. RF-AGC alignment.
4. Rough adjustment of GEOMETRY.
5. Allow the set to warm up.
6. Precise adjustment of VG2 and FOCUS.
7. Precise adjustment of GEOMETRY.
8. PIP alignments (if present).
9. COLOUR alignments.
10. Other software alignments.

8.2 Hardware Alignments

Notes:

- The Service Alignment Mode (SAM) is described in chapter 5 "Service Modes, Error Codes, and Fault Finding".
- Use the cursor-, menu-, and OK-buttons of the remote control (RC) transmitter for navigation.



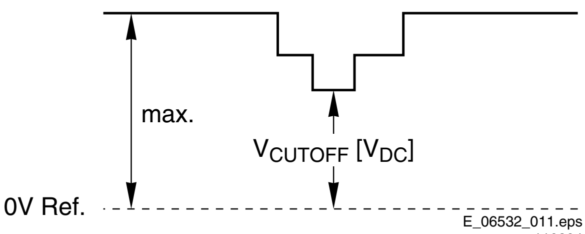
G_16350_054.eps
060406

Figure 8-1 Focus 1, 2, and Screen Vg2 adjustment

8.2.1 Vg2 Adjustment

In the frame-blanking period of the R, G, and B signals applied to the CRT, the video processor inserts a measuring pulse with different DC levels. Measure the black level pulse during the vertical flyback at the RGB cathodes of the CRT (pin 8 = R, 6 = G, 11 = B).

1. Connect the RF output of a pattern generator to the antenna input. Input a "black" picture (blank screen on CRT without any OSD info) test pattern.
2. In the SAM mode, set the “Normal Red”, “Normal Green” and “Normal Blue” values to “0” for “White Tone”.
3. Disable the black current loop (via the AKB bit).
4. Use the MENU key to enter the "user" menu, select "Picture", and set "Brightness" and "Contrast" to “0”.
5. Set the oscilloscope to 20 V/div and the time base to 20 us/div. Use external triggering on the vertical pulse.
   Caution: use a trigger point on the "**cold**" side!
6. Ground the scope on the CRT panel ("**cold**" side) and connect a 10:1 probe to one of the cathodes of the picture tube socket (see circuit diagram F).
7. Measure at cathodes on the picture tube socket the DC-level of the measuring pulse (1st full line after the frame blanking) with respect to earth; N.B.: R = pin 8, G = pin 6, B = pin 11 of CRT socket.
8. Select the pin with the highest level found and adjust V_cutoff by means of the Vg2-potmeter (lowest-one) on the Line Output Transformer (LOT) to 145 +/- 5 V_{DC} (for all screen sizes).
9. Reset "Contrast" and "Brightness" to their original values.



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110204

Figure 8-2 Waveform Vg2 alignment

8.2.2 Focus alignment

The LOT has the following outline:
– Focus 1 (F1) = Static alignment (red wire).
– Focus 2 (F2) = Dynamic alignment (white wire).

1. Use an external video pattern generator to input a "circle" or "crosshatch" test pattern to the set.
2. Choose "Natural" picture mode with the "Smart Picture" button on the remote control transmitter.
3. Adjust the "dynamic focus 2" potentiometer (in the middle on the LOT) until the horizontal lines at the centre of the screen are of minimum width without introducing a visible haze.
4. Adjust the "static focus 1" potentiometer (highest of the LOT) until the horizontal lines at the sides of the screen are of minimum width without introducing a visible haze.
5. Repeat these two steps to achieve the best result.

8.3 Software Alignments

Put the set in the SAM (see the "Service Modes, Error Codes and Fault Finding" section). The SAM menu will now appear on the screen. The different alignment parameters are described further on.

Notes:
- All changes to menu items and alignments must be stored manually.
- If an empty EAROM (permanent memory) is detected, all settings are set to pre-programmed default values, so the set must be re-aligned.

8.3.1 Tuner

AGC
1. Set an external pattern generator to a colour bar video signal and connect the RF output to the aerial input of the TV. Set the amplitude to 10 mV and the frequency to 475.25 MHz. Use system PAL B/G if possible, otherwise match the system of your generator with the received signal in the set.
2. Put the set in the SAM mode.
3. Select via the TUNER menu, the AGC sub-menu.
4. Connect a DC multi-meter to pin 1 of the tuner (F235, AGC pin).
5. Adjust the AGC until the voltage at pin 1 (F235, AGC pin) of the tuner is 3.3 V (+/- 0.1 V). The value can be incremented or decremented by pressing the right/left CURSOR button on the RC.
6. After alignment, save the value(s) with the STORE command in the SAM main menu.

IF PLL OFFSET
No adjustments needed: default value (which can not be changed) is "0".

8.3.2 Geometry

Notes:
- Set an **external** pattern generator to a crosshatch video signal and connect the RF output to the aerial input of the TV. Set the amplitude at least 1 mV_{RMS} (60 dBμV) and the frequency to 475.25 MHz. Use system PAL B/G if possible, otherwise match the system of your generator with the received signal in the set.
- Use the default alignment settings, but set "Brightness" to "32".
- For wide screen models, set to "wide screen" mode, for "classic" models, set to "4:3".
- After alignment, save the value(s) with the STORE command in the SAM main menu.

Service tip: When the set is equipped with a rotation coil, use this menu item to check its correct alignment. If alignment is not correct, go to the user MENU, choose FEATURES, and select ROTATION. With the use of a crosshatch test pattern, align it to a correct horizontal picture.

Alignment

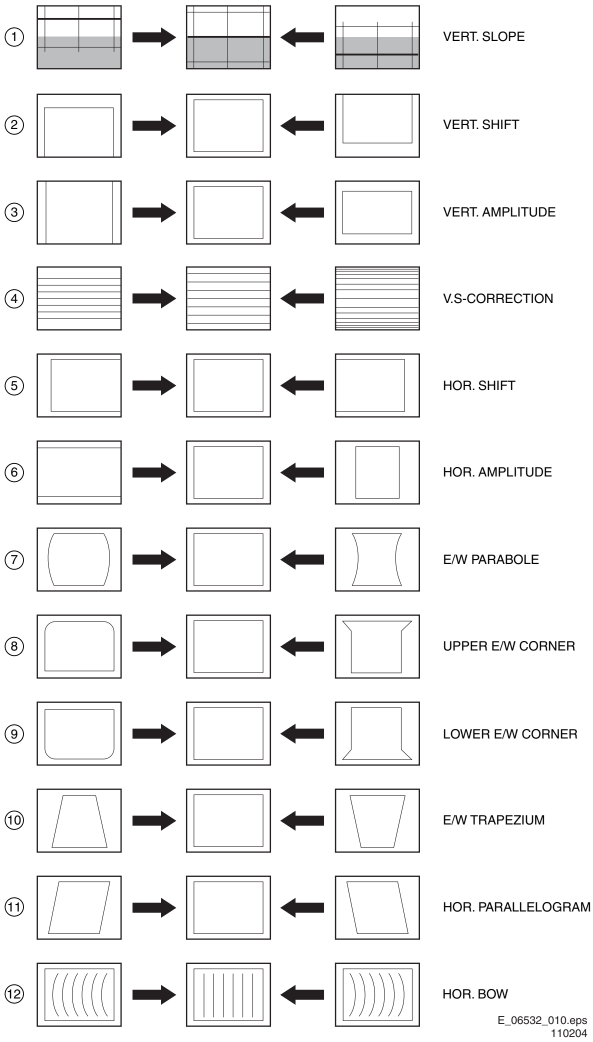


Figure 8-3 Geometry Alignments

Select “Pixel Plus” mode and put a test picture on the screen. Use the following software regulations to modify the vertical parts of the screen geometry (see Figure “Geometry Alignments” for a general idea of what you should see on the screen):
1. VSH (Vertical Shift): Align for the vertical picture centre, range from 0 to +63.
2. VAM (Vertical Amplitude): Compensating for any gain error in amplifier, adjust range from 0 to +63 to the proper amplitude.
3. VSC (Vertical S-Correction): Align for equal height of the blocks in the top, the bottom and the middle, range from 0 to +63.
4. VS (Vertical Slope). First activate menu item SBL (Service Blanking = ON), so the lower part of the test picture is no longer visible. Then adjust the Vertical Slope. Align for the horizontal line in the middle of the test picture to line up with the boundery between the (still visible) upper part of the screen and the (invisible) lower part of the screen. Range from 0 to +63. After this, switch the SBL to OFF again.

Next, align the following horizontal screen geometry settings:
1. HSH (Horizontal Shift): Adjust for the horizontal centre of the screen, range from 0 to +63.

2. EWW (East-West Width): This sets the (overall) horizontal size of the picture on the screen. Range from 0 to +63.
3. EWP (East-West Parabola): Align for the vertical lines of the test picture to be straight lines. Range from 0 to +63.
4. HB (Horizontal Bow): Align the EW parabola to be symmetrical, range from 0 to +63.
5. HP (Horizontal Parallel): Align for straight vertical lines on the picture sides, range from 0 to +63.
6. UCP (Upper Corner Parabola): Align for the vertical lines in the upper corners of the screen to be straight. Range from 0 to +63.
7. LCP (Lower Corner Parabola): Align for the vertical lines in the lower corners of the screen to be straight. Range from 0 to +63.
8. EWT (East-West Trapezium): Align for equal length of the horizontal lines in the upper and lower parts of the screen. Range from 0 to +63.

Now, select “Double Lines” mode, and again align the following vertical screen geometry setting:
1. VS (Vertical Slope); First activate menu item SBL (Service Blanking = ON), so the lower part of the test picture is no longer visible. Then adjust the Vertical Slope. Align for the horizontal line in the middle of the test picture to line up with the boundery between the (still visible) upper part of the screen and the (invisible) lower part of the screen. Range from 0 to +63. After this, switch the SBL to OFF again.

8.3.3 White Tone

In the WHITE TONE sub menu, the colour values for the different colour temperatures can be changed.
The colour temperature mode (NORMAL, DELTA COOL, DELTA WARM) can be selected per colour (R, G, and B) with the RIGHT/LEFT cursor keys. The mode or value can be changed with the UP/DOWN cursor keys.
First, the values for the NORMAL colour temperature must be selected. Then the offset values for the DELTA COOL and DELTA WARM mode can be selected. Note that the alignment values are non-linear.

Alignment
Normally, no adjustments are needed.
If the white tone alignment values used in CSM of the the TV set do not give the required result, use the following alignment method:
1. Set the external pattern generator to a 100% white pattern, and connect its RF output to the aerial input of the TV. Set the amplitude to at least 1 mV_{RMS} (60 dBuV) and the frequency to 475.25 MHz. Use system PAL B/G if possible, otherwise match the system of your generator with the received signal in the set.
2. Set "Smart Picture" to "Natural".
3. Set "Dynamic NR" to "off".
4. Put the set in the SAM mode.
5. Select via the WHITE TONE menu, the PATTERN sub-menu.
6. Set PATTERN to "on".
7. Set NORMAL GREEN to "0".
8. Measure with the colour analyser (Minolta CA100 Colour Analyser or equivalent), calibrated with the spectra, on the centre of the screen.
9. Adjust with the cursor left/right command the Red and Blue register for the right xy-coordinates (see the table below).
10. Repeat the white tone adjustment also for the colour temperatures COOL and WARM.

Table 8-1 White tone alignment (with colour analyser)

White D mode	Temperature	DUV	x	y
Normal	13100 K	+-0.004	264 +/- 4	279 +/- 4
Cool	18300 K	+-0.005	256 +/- 5	264 +/- 5
Warm	6500 K	+-0.005	314 +/- 5	324 +/- 5

8.3.4 Sound

No adjustments needed. Use the given default values:
- AF-M = 250
- A2T = 400
- AT = 2

8.3.5 Smart Settings

No adjustments needed.

8.4 Option Settings

8.4.1 Introduction

The microprocessor communicates with a large number of I^2C ICs in the set. To ensure good communication and to make digital diagnosis possible, the microprocessor has to know which ICs to address. The presence / absence of these specific ICs (or functions) is made known by the option codes.

Notes:
- After changing the option(s), save them with the STORE command.
- All changes are disregarded when the OPTIONS submenu is left without using the STORE command.
- The new options setting is only active after the TV is switched "off" and "on" again with the Mains switch (the EAROM is then read again).

8.4.2 Changing Options

Options are used to control the presence / absence of certain features and hardware. There are two ways to change the option settings. All changes in the option settings are saved by selecting STORE and pressing the CURSOR RIGHT key. Some changes will only take affect after the set has been switched OFF and ON with the mains switch (cold start).

Changing Multiple Options by Changing Option Byte Values
Option Bytes (OB) makes it possible to set all options very fast. An option byte represents a number of different options. All options are controlled via option bytes (OB1 to OB13; each “OB” number represents 16 bits; bit numbers that are not used are omitted in the second column). Select an Option Byte you want to change with the CURSOR UP/DOWN keys, and key in the new value. See the table for more details. An explanation per option is listed in paragraph "Option Bit Definition".

Changing a Single Option
It is also possible to change an option one at a time. Therefore, select the option with the CURSOR UP/DOWN keys and change its setting with the LEFT/RIGHT keys.

8.4.3 Option Settings

In the table below, you will find the option settings.

Table 8-2 Option codes in detail, at bit level

Option byte & bit table for restoring the TV set to its original Factory Default Options via the NVM Editor in the SAM menu			
	Model number	29PT9521/12	32PW9551/12
OP1	**Description of feature/option to be switched ON or OFF**		
bit 7 (msb)	OP_PHILIPS_TUNER	1	1
bit 6		0	0
bit 5		0	0
bit 4		0	0
bit 3	OP_ACI	1	1
bit 2	OP_UK_PNP	0	0
bit 1	OP_VIRGIN_MODE	1	1
bit 0 (lsb)		0	0
	Total DEC Value	138	138
	Total HEX Value	8A	8A
OP2			
bit 7 (msb)		0	0
bit 6		0	0
bit 5		0	0
bit 4		0	0
bit 3	OP_TILT	0	1
bit 2		0	0
bit 1		0	0
bit 0 (lsb)		0	0
	Total DEC Value	0	8
	Total HEX Value	00	08
OP3			
bit 7 (msb)		0	0
bit 6		0	0
bit 5		0	0
bit 4		0	0
bit 3		0	0
bit 2	OP_WIDE_SCREEN	0	1
bit 1	OP_WSSB	0	1
bit 0 (lsb)		0	0
	Total DEC Value	0	6
	Total HEX Value	00	06
OP4			
bit 7 (msb)	OP_COMPRESS_16_9	1	0
bit 6		0	0
bit 5		0	0
bit 4		0	0
bit 3		0	0
bit 2		0	0
bit 1		0	0
bit 0 (lsb)		0	0
	Total DEC Value	128	0
	Total HEX Value	80	00
OP5			
bit 7 (msb)		0	0
bit 6		0	0
bit 5		0	0
bit 4		0	0
bit 3		0	0
bit 2		0	0
bit 1		0	0
bit 0 (lsb)		0	0
	Total DEC Value	0	0
	Total HEX Value	00	00
OP6			
bit 7 (msb)		0	0
bit 6		0	0
bit 5		0	0
bit 4		0	0
bit 3		0	0
bit 2		0	0
bit 1	OP_LIGHT_SENSOR	1	1
bit 0 (lsb)		0	0
	Total DEC Value	2	2
	Total HEX Value	02	02
OP7			
bit 7 (msb)		0	0
bit 6		0	0
bit 5		0	0
bit 4	OP_SS_DEMO_EU	1	1
bit 3		0	0
bit 2		0	0
bit 1		0	0
bit 0 (lsb)		0	0
	Total DEC Value	16	16
	Total HEX Value	10	10

8.4.4 Option Bit Definition

OP_PHILIPS_TUNER: Philips Tuner.
Function: Choose the tuner type that is configured in the hardware.
Values: OFF= Disabled, Other (non-Philips) tuner is used. ON= Enabled, Philips compatible tuner is used.

OP_ACI: Automatic Channel Installation.
Function: Disable/Enable automatic channel installation.
Values: OFF= Disabled Automatic Channel Installation. ON= Enabled Automatic Channel Installation.
Note: Download present program when ACI is ON.

OP_UK_PNP: UK Plug and Play.
Function: Disable/Enable UK's default Plug and Play setting.
Values: OFF= Disabled, UK's default Plug and Play setting is not available. ON= Enabled, UK's default Plug and Play setting is available.
Note: When UKPNP and VMOD are ON at the initial set-up, LANGUAGE= ENGLISH, COUNTRY= GREAT BRITAIN and after auto store is complete, VMOD will be set automatically to OFF while UKPNP remain ON.

OP_VIRGIN_MODE: Virgin Mode.
Values: OFF= Disabled, cannot access virgin mode. ON= Enabled, can access virgin mode.
Function: Disable/Enable virgin mode.
Note: Plug and Play menu item will be displayed to perform installation at the initial start up of the TV when VIRGIN MODE is ON and after installation is done, VIRGIN MODE will be automatically set to OFF.

OP_TILT: Rotation Tilt.
Function: Change the tilt level of picture tube.
Values: OFF= Disabled, menu item ROTATION is not available. ON= Enabled, menu item ROTATION is available (WS = 1; 4 : 3 = 0).

OP_WIDE_SCREEN: Screen size 16x9.
Function: Disable/Enable Screen size 16x9.
Values: OFF= Disabled. Screen size 16x9 is not available. ON= Enabled. Screen size 16x9 is available.

OP_WSSB: Wide Screen Signalling Bit.
Function: Disable/Enable Wide screen Signalling bit function.
Values: OFF= Disabled. ON= Enabled (WS = 1; 4 : 3 = 0).

OP_COMPRESS_16_9: Compression enable/disable bit.
Function: Disable/Enable screen compression function.
Values: OFF= Disabled. ON= Enabled (compression = 1; no compression = 0).

OP_LIGHT_SENSOR: Light sensor on/off switching bit.
Function: Disable/Enable Light sensor.
Values: OFF= Disabled. Light sensor mode disabled. ON= Enabled. Light sensor mode available.

OP_SS_DEMO_EU: Split Screen Demo.
Function: Disable/Enable Split Screen Demo.
Values: OFF= Disabled. Split Screen Demo is not available. ON= Enabled. Split Screen Demo is available.

9. Circuit Descriptions, Abbreviation List, and IC Data Sheets

Index of this chapter:

Note: Only **new** circuits (circuits that have not been published recently) are mentioned. For the other circuits, see the A02 and the ES1 manuals.

9.1 Introduction

The L06.1E is a 100 Hz widescreen CRT based HD prepared TV set for the year 2006. Its CRT has a “RF” (Real Flat) screen, with 29 and 32 inch screen formats.
The set has the following styling: SL6.
Pixel Plus technology is used for improved picture quality.
This TV set is based on the LSP of the ES1 (which in its turn is based on the A02).
It has a new SSB. The SSB is no longer directly attached to the LSP, but has been moved to a separate position in the TV set. Flatcables are used for the connections between the LSP and the SSB.

For a description of the deflection circuits, the correction circuits and the X-ray protection circuits of the LSP, see the ES1 manual. For a description of the remaining LSP circuits, see the A02 manual, on which the ES1 was based.
For a description of the new SSB, see the circuit diagrams in chapter 6 and the general description below.

9.1.1 General description of the SSB

The L06.1E chassis has a new SSB, with respect to the SSB used in the ES1 chassis. This SSB is based on the Trident and a new processor Reneas (instead of the Painter processor used in the L05 chassis).

The main functionalities of the SSB are:

- RF tuner, RF/AV decoder, 3D comb filter, AV interface for: 2 SCART connectors, 1 Side AV (for SVHS and headphone); HD YPbPr/LR; HDMI/DVI plus LR Audio,
- Up-scaler (uses PQ registers in Trident),
- Audio decoder/processor,
- Deflection processor,
- System controller with Teletext processor (128 MB memory, shared between video and Teletext - 1200 pages.

9.2 Small Signal Board

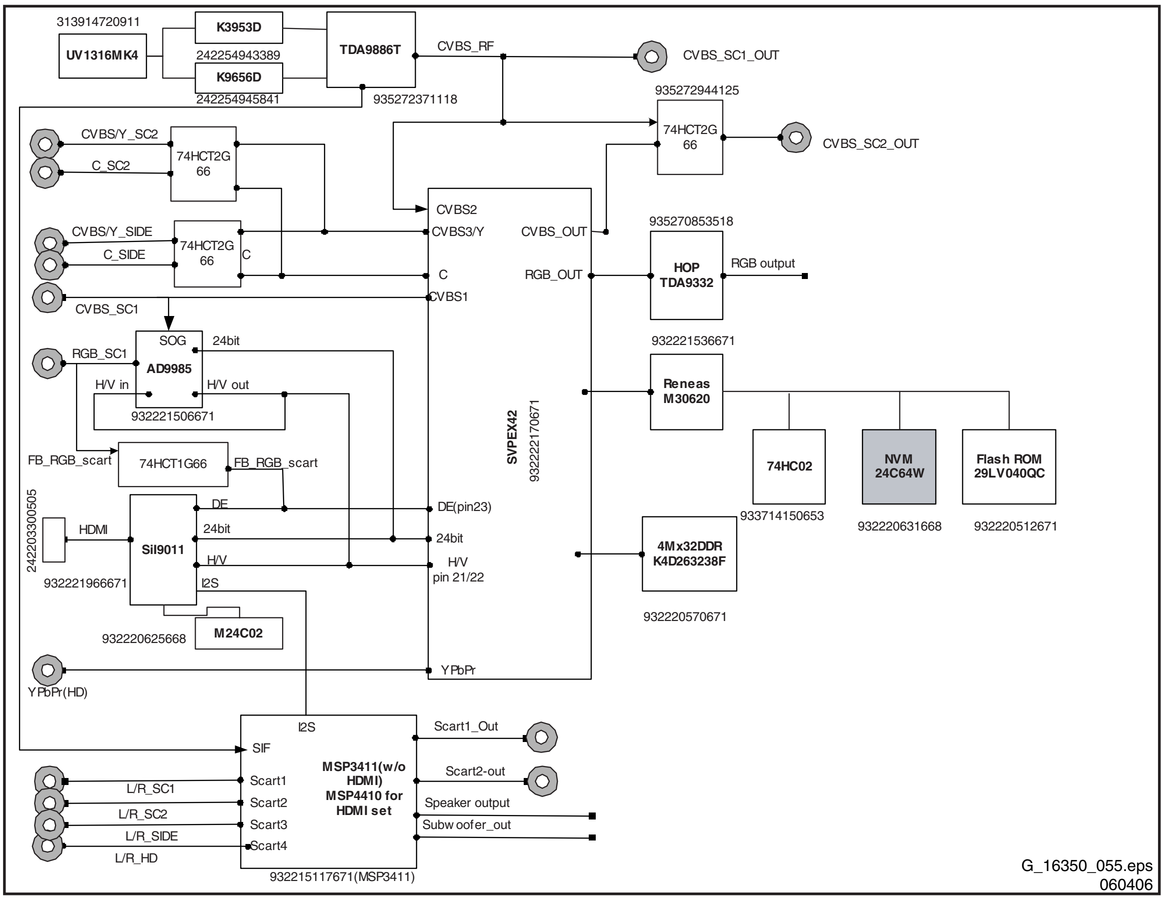


Figure 9-1 SSB architecture

9.3 Software Upgrading

In this chassis, you can **upgrade** the software via the IAP tool (In Application Programming). This offers the possibility, to replace the entire SW image without having to remove the flash-RAM from its socket. You can find more information on this in Chapter 5 ("Service Modes, Error Codes, and Faultfinding") in the paragraph “IAP Tool”.

9.4 Abbreviation List

0/6/12	SCART switch control signal on A/V board. 0 = loop through (AUX to TV), 6 = play 16:9 format, 12 = play 4:3 format
2CS	2 Carrier Sound
A2	Commonly known as 2 Carrier Sound (2CS) system
AC	Alternating Current
ACI	Automatic Channel Installation: algorithm that installs TV channels directly from a cable network by means of a predefined TXT page
ADC	Analogue to Digital Converter
ADOC	Analogue Digital One Chip
AFC	Automatic Frequency Control: control signal used to tune to the correct frequency
AGC	Automatic Gain Control: algorithm that controls the video input of the feature box
AM	Amplitude Modulation
ANC	Automatic Noise Reduction; One of the algorithms of Auto TV
AP	Asia Pacific
AR	Aspect Ratio: 4 by 3 or 16 by 9
ASD	Automatic Standard Detection
AUDIO-SL	Audio Surround Left
AV	Audio Video
AVL	Automatic Volume Level control
B-SC1-IN	Blue SCART1 in
B-SC2-IN	Blue SCART2 in
B-TXT	Blue teletext
B/G	Monochrome TV system. Sound carrier distance is 5.5 MHz
BBD	Black Bar Detection
BCL	Beam Current Limiter
BC-PROT	PROTection signal to the microprocessor in case of a too high Beam Current.
BLC-INFO	BLack Current INFO.
BLD	BLack Level Detection.
BS	BLack Stretch.
BTSC	Broadcast Television Standard Committee; Multiplex FM stereo sound system, originating from the USA and used e.g. in LATAM and AP-NTSC countries.
C	Centre channel (audio) or Chroma; The NTSC/PAL/SECAM video signal contains two parts that make up what we see on the display; the luminance (or intensity) part and the colour (or chroma) part
CBA	Circuit Board Assembly (or PWB)
CL	Constant Level: audio output to connect with an external amplifier
CLUT	Colour Look Up Table
ComPair	Computer aided rePair
CRT	Cathode Ray Tube (or picture tube)
CSM	Customer Service Mode
CTI	Colour Transient Improvement; Manipulation of the steepness of the chroma transients
CVBS	Composite Video Blanking and Synchronisation
CVBS-EXT	CVBS signal from external source (VCR, VCD, etc.)
CVBS-INT	CVBS signal from Tuner
CVBS-MON	CVBS monitor signal
CVBS-TER-OUT	CVBS terrestrial out
CVI	Component Video Input

D/K	Monochrome TV system. Sound carrier distance is 6.5 MHz. D= VHF-band, K= UHF-band
DAC	Digital to Analogue Converter
DAF	Dynamic Astigmatism and Focusing; a method to keep the electron spot round and focused during the whole scan
DBE	Dynamic Bass Enhancement; extra low frequency amplification
DC	Direct Current
DCC	Dynamic Contrast Control
DC-filament	Filament supply voltage
DEGAUSS	Control line. Logic LOW to enable CRT degaussing. Logic HIGH to disable the CRT degaussing.
DFU	Directions For Use: owner's manual
DNR	Digital Noise Reduction; Noise reduction feature of the set / Dynamic Noise Reduction
DNR	Digital Noise Reduction; Noise reduction feature of the set / Dynamic Noise Reduction
DOP	Digital Output Processor (Part of ADOC which takes care of RGB control and deflection)
DPL	Dolby Pro Logic
DPL	Dolby Pro Logic
DRAM	Dynamic RAM; dynamically refreshed RAM
DRAM	Dynamic RAM; dynamically refreshed RAM
DS	Digital Scan
DSP	Digital Signal Processing
DST	Dealer Service Tool; Special remote control designed for dealers to enter e.g. service mode (a DST-emulator is available in ComPair)
DTS	Digital Theatre Sound
DVD	Digital Versatile Disc
DVI(-d)(-i)	Digital Visual Interface (d= digital only) (i= integrated); A digital video interface to a display, designed to replace the analogue YPbPr or RGB interface
DW	Double Window
DYN-FASE-COR	Dynamic phase correction, to correct the phase of the H-drive
EEPROM	Electrically Erasable and Programmable Read Only Memory
EHT	Extreme High Tension; the voltage between the cathode and the shadow mask that accelerates the electrons towards the screen (around 25 kV)
EHT-INFO	Extra High Tension INFOrmation, used for contrast reduction, vertical and horizontal amplitude correction, beam current protection, and flash detection
EMI	Electro Magnetic Interference; Leakage of high-frequency radiation from a transmission medium
EPG	Electronic Program Guide; System used by broadcasters to transmit TV guide information (= NexTView)
EPLD	Erasable Programmable Logic Device
EU	EUrope
EW	East West, related to horizontal deflection of the set
EW-DRIVE	East -West correction drive signal.
EXT	EXTernal (source), entering the set by SCART or by cinches (jacks)
FBL	Fast Blanking: DC signal accompanying RGB signals
FBL-SC1-IN	Fast blanking signal for SCART1 in
FBL-SC2-IN	Fast blanking signal for SCART2 in
FBL-TXT	Fast Blanking Teletext
FBX	Feature BoX; Part of the small signal board /separate module which contains 100 Hz processing, extra features and AutoTV algorithms (FBX6= based on PICNIC, FBX7= based on PICNIC and Eagle, FBX8= based on PICNIC, Eagle, and Columbus)
FE	Front End; Tuner and RF part together
FLASH	FLASH memory
Field	Each interlaced broadcast FRAME is composed of two Fields, each Field consists of either Odd or Even lines
Filament	Filament of CRT
FLASH	FLASH memory
FM	Field Memory / Frequency Modulation
FM-Radio	Radio receiver that can receive the FM Band 87.5 - 108 MHz
FMR	FM Radio
Frame	A complete TV picture comprising all lines (625/525)
FRAMEDRIVE -	Differential frame (vertical) drive signal (negative)
FRAMEDRIVE +	Differential frame (vertical) drive signal (positive)
FRC	Frame Rate Converter
FRONT-C	Front input chrominance (SVHS)
FRONT-DETECT	Control line for detection of headphone insertion, Service Mode jumper, power failure detection
FRONT-Y_CVBS	Front input luminance or CVBS (SVHS)
FTV	Flat TeleVision
G	Green
G-SC1-IN	Green SCART1 in
G-SC2-IN	Green SCART2 in
G-TXT	Green teletext
Gb/s	Giga bits per second
H	H_sync to the module
H-2FH	Horizontal sync input for the 2fH source
H-A50	Horizontal Acquisition 1fH: horizontal sync pulse coming out of the HIP
H-D100	Horizontal Drive 2fH; Horizontal sync pulse coming out of the Feature Box
H-DRIVE	Horizontal Drive
H-FLYBACK	Horizontal Flyback
H-OUT	H_sync output of the module / Horizontal Output pulse
HA	Horizontal Acquisition; horizontal sync pulse
HD	High Definition: 720p, 1080i, 1080p
HDMI	High Definition Multimedia Interface, digital audio and video interface
HEADPHONE-L	Stereo headphone (Left) signal output.
HEADPHONE-R	Stereo headphone (Right) signal output.
HFB	Horizontal Flyback Pulse; Horizontal sync pulse from large signal deflection
HP	Head Phone
HW	Hardware
I	Monochrome TV system. Sound carrier distance is 6.0 MHz. VHF- and UHF-band
IAP	IAP Tool (In Application Programming): used to upload software to a TV set without having to remove flash ROMs
I^2C	Inter IC bus (also called IIC)
I^2S	Inter IC Sound bus
IC	Integrated Circuit
IDRIVE-	Vertical drive -
IDRIVE+	Vertical drive +
IF	Intermediate Frequency

IF-TER	IF signal from main tuner
IIC	Inter IC bus (also called I2C)
Interlaced	Scan mode where two fields are used to form one frame. Each field contains half the number of the total amount of lines. The fields are written in "pairs", causing line flicker.
IO	In/Out
IR	Infra Red
IROM	Internal ROM (inside the microcontroller)
IRQ	Interrupt ReQuest
ITV	Institutional TV
JTAG	Joint Test Action Group; Definition for a standardised serial test interface
KEYB	Front panel keyboard
KEYBOARD	Input line. Carries the voltage value of the corresponding tact switch on TOP-control or FRONT-control keypad
L	Left audio channel
L/L’	Monochrome TV system. Sound carrier distance is 6.5 MHz. L' is Band I, L is all bands except for Band I
Last Status	The settings last chosen by the customer and read and stored in RAM or in the NVM. They are called at start-up of the set to configure it according to the customer's preferences
LATAM	LATin AMerica
LCD	Liquid Crystal Display
L-CL_VLOUT	REAR CINCH stereo output
LED	Light Emitting Diode
LFE	Low Frequency Enhancement audio channel
L-FRONT-IN	EXT3 stereo input
LIGHT-SENSOR	Ambient light intensity signal.
LINE DRIVE	Horizontal (line) deflection drive signal (for the Line transistor)
LNA	Low Noise Adapter / Low Noise Amplifier
LOT	Line Output Transformer (also called FBT); The transformer in which the EHT is generated
LS	Loud Speaker
Ls, Rs	Left surround and Right surround channel (audio)
LSP	Large Signal Panel
Lt, Rt	Left total and Right total in case of a Dolby ProLogic encoded signal (audio)
LTI	Luminance Transient Improvement
LTP	Luminance Transient Processor
LUT	Look Up Table
LVDS	Low Voltage Differential Signalling, data transmission system for high speed and low EMI communication.
M/N	Monochrome TV system. Sound carrier distance is 4.5 MHz. M= 525 lines @ 60 Hz, N= 625 lines @ 50 Hz
Mb/s / Mbps	Mega bits per second
MCS	Multi Channel Sound: refers to Dolby Pro Logic Surround in ES1E ADOC
MDO	Mode control data output
MIPS	Microprocessor without Interlocked Pipeline-Stages; A RISC-based microprocessor
Mips	Million instructions per second
MMI	Multi Media Interface
MOSFET	Metal Oxide Semiconductor Field Effect Transistor
MPEG	Motion Pictures Experts Group
MPIF	Multi Platform InterFace (Part of Salsa chipset, sister-chip of ADOC IC)
MPIP	Multi Picture in Picture; Commercial feature showing several frozen or moving pips
MPX	MultiPleX
MSP	Multi-standard Sound Processor: ITT sound decoder
MUTE	MUTE Line
NAFTA	North American Free Trade Association: Trade agreement between Canada, USA and Mexico
NC	Not Connected
NDF	No vertical Deflection; Vertical fly back protection
NHF	No Horizontal deflection; Horizontal fly back protection
NICAM	Near Instantaneously Companded Audio Multiplexing; This is a digital sound system, mainly used in Europe
NTC	Negative Temperature Coefficient, non-linear resistor (resistance decreases if temperature increases)
NTSC	National Television Standard Committee. Colour system used mainly in North America and Japan. Colour carrier NTSC M/N = 3.579545 MHz, NTSC 4.43 = 4.433619 MHz (this is a VCR norm, it is not transmitted off-air)
NVM	Non Volatile Memory; IC containing data such as alignment values, preset stations
O/C	Open Circuit
OB	Option Byte
OC	Open Circuit
ON/OFF LED	On/Off control signal for the LED
ON/STBY	On/Standby
ON-OFF-LED	Active-LOW control line. Logic LOW = red LED "on", HIGH = red LED "off"
OP	Option Byte
OSD	On Screen Display
P50	Project 50; Communication protocol between TV and peripherals
PAL	Phase Alternating Line; Colour system mainly used in West Europe (colour carrier= 4.433619 MHz) and South America (colour carrier PAL M= 3.575612 MHz and PAL N= 3.582056 MHz)
PC	Personal Computer
PCB	Printed Circuit Board (or PWB)
PCM	Pulse Code Modulation
PILOT	Pilot Signal
PIG	Picture In Graphic
PIP	Picture In Picture
PLL	Phase Locked Loop; Used for e.g. FST tuning systems. The customer can directly provide the desired frequency
POR	Power On Reset; Signal to reset the µP
POR-FLASH	Signal that informs the micro controller (painter) that set will switch "off"
Progressive Scan	Scan mode where all scan lines are displayed in one frame at the same time, creating a double vertical resolution.
PTC	Positive Temperature Coefficient, non linear resistor (resistance increases if temperature increases)
PTP	Picture Tube Panel
PWB	Printed Wiring Board (also called PCB or CBA)
PWM	Pulse Width Modulation
QSS	Quasi Split Sound
R	Right audio channel / Red

RAM Random Access Memory
RC Remote Control transmitter
RC5 (6) Remote Control system 5 (6), the signal from the remote control receiver
RDS Radio Data System (European); This is an MPX signal carried in FM radio channels (87.5 … 108 MHz)
RESET RESET signal
RF Real Flat (picture tube) or Radio Frequency
RGB Red, Green, and Blue colour space; The primary colour signals for TV. By mixing levels of R, G, and B, all colours (Y/C) are reproduced
RGBHV Red, Green, Blue, Horizontal sync, and Vertical sync
RISC Reduced Instruction Set Computer; A processor architecture based on ultra-high speed processing technology that uses a far simpler set of operating commands than a normal microprocessor does
RMS Root Mean Square value
ROM Read Only Memory
S Surround channel or mono surround channel (audio)
SALSA System Application for Low Segment of Analogue TV
SAM Service Alignment Mode
SAP Secondary Audio Program; Generally used to transmit audio in a second language
SAW Surface Acoustic Wave
SC SandCastle: two-level pulse derived from sync signals
SCART Syndicat des Constructeurs d'Appareils Radiorécepteurs et Téléviseurs; This is a 21-pin connector used in EU, that carries various audio, video, and control signals (it is also called Péritel connector)
SCAVEM Scan Velocity Modulation; Advanced beam control technology, which results in sharper edges on all images for outstanding clarity
SC1-OUT SCART output of the MSP audio IC
SC2-B-IN SCART2 Blue in
SC2-C-IN SCART2 chrominance in
SC2-OUT SCART output of the MSP audio IC
S/C Short Circuit
SCL Serial Clock signal on I^{2}C bus
SCL-F Serial CLock signal on Fast I^{2}C bus
SD Standard Definition
SDA Serial Data line of I^{2}C bus
SDA-F Data Signal on Fast I^{2}C bus
SDM Service Default Mode
SDAM Service Default / Alignment Mode
SDRAM Synchronous DRAM
SECAM SÉquence Couleur Avec Mémoire; Colour system mainly used in France and East Europe. The chroma is FM modulated and the R-Y and B-Y signals are transmitted line sequentially. Colour carriers= 4.406250 MHz and 4.250000 MHz
SEL-SVHS-RR-STATUS2 SVHS Selection Signal
SIF Sound Intermediate Frequency
SIMM Single In-line Memory Module; 80-fold connector between LSP and SSB
SL Single In-line Memory Module; 80-fold connector between LSP and SSB
SLDP Smart Local Dooming Prevention (HW and SW)
SMC Surface Mounted Component
SMPS Switched Mode Power Supply
SND SouND
SNDL-SC1-IN Sound left SCART1 in
SNDL-SC1-OUT Sound left SCART1 out
SNDL-SC2-IN Sound left SCART2 in
SNDL-SC2-OUT Sound left SCART2 out
SNDR-SC1-IN Sound right SCART1 in
SNDR-SC1-OUT Sound right SCART1 out
SNDR-SC2-IN Sound right SCART2 out
SNDR-SC2-OUT Sound right SCART2 out
SNDS-VL-OUT Surround sound left variable level out
SNDS-VR-OUT Surround sound right variable level out
SNERT Synchronous No parity Eight bit Reception and Transmission
SOG Sync On Green
SOPS Self Oscillating Power Supply
SOUND-ENABLE Control line to do hardware mute or un-mute of loudspeakers.
SRAM Static RAM
SRAM Static RAM
SS Small Screen
ST-BY STandBY
STANDBY (POR) Signal coming from Main Supply informing the supply is switching "off"
STATUS Status signal from pin 8 of SCART connector
STBY STandBY
SVHS Super Video Home System
SW Software or Subwoofer or Switch
TBD To Be Defined
THD Total Harmonic Distortion
TILT PWM Output signal (variable DC level) to control the picture tilt from the DOP block of the ADOC.
TXT Teletext; TXT is a digital addition to analogue TV signals that contain textual and graphical information (25 rows x 40 columns). The information is transmitted within the first 25 lines during the Vertical Blank Interval (VBI)
TXT-SW Teletext switch
U-100 U signal 1fH (after Feature Box)
UART Universal Asynchronous Receiver Transmitter
UBE Ultra Bass Enhancement
µC Microcontroller
UI User Interface
UOC Ultimate One Chip
µP Microprocessor
UV Colour difference signals
V V_sync
V-100 V_sync from Feature Box (2fH)
V-2FH Vertical sync input for the 2fH source.
VA50 Vertical Acquisition 1fH
V-AMP Vertical Amplitude DAC output
V-BAT Main supply for deflection (usually 141 V)
VD-100 Vertical Drive 2fH; vertical sync pulse from deflection
VD-NEG One of the symmetrical drive signals for the DC frame output stage.
VD-POS One of the symmetrical drive signals for the DC frame output stage
V-OSD Vertical sync OSD
VA Vertical Acquisition
VBI Vertical Blanking Interval; Time during which the video signal is blanked when going from bottom to top of the display
V-chip Violence chip. Adds content filtering capabilities to NTSC video
VCR Video Cassette Recorder
VD Vertical Drive; Vertical sync pulse coming from the Feature Box
VDS Virtual Dolby Surround
VERT Vertical Output pulse

VESA	Video Electronics Standards Association
VGA	Video Graphics Array
VGND	Video ground
VGUARD	Vertical guard voltage
VIF	Video Intermediate Frequency
VL	Variable Level out; Processed audio output towards external amplifier
VOL (+/-)	Volume (+/-)
V-SYNC-VGA	V_sync on VGA connector
WD	Watch Dog
WE	Write Enable control line
WS	Wide Screen; Screens with an aspect ratio of 16:9
WSS	Wide Screen Signalling; Used by broadcasters to transmit e.g. PALPLUS and 16:9 Aspect Ratio
WST	World System Teletext
WXGA	1280x768 (15:9) or 1366x768 (16:9)
WYSIWYR	What You See Is What You Record: record selection that follows main picture and sound
XGA	Extended Graphics Array; 1024x768 (4:3)
XTAL	Quartz crystal
Y	Luminance signal
YPbPr	Component video (Y= Luminance, Pb/ Pr= Colour difference signals B-Y and R-Y, other amplitudes w.r.t. to YUV)
Y/C	Y consists of luminance signal, blanking level and sync; C consists of chroma (colour) signal
Y-OUT	Luminance-signal
YUV	Colour space used by the NTSC and PAL video systems. Y is the luminance and U/V are the colour difference signals

9.5 IC Data Sheets

This section shows the internal block diagrams and pin layouts of ICs that are drawn as "black boxes" in the electrical diagrams (with the exception of "memory" and "logic" ICs). This is not applicable to this manual.

10. Spare Parts List

Sets Listed

	8670 000 23687	29PT9521/12
	8670 000 23759	32PW9551/12

Set Level

Various

1099⚠	9301 982 90314	W76ERF185X044 32”
1099⚠	9301 991 30314	A68ERF185X044 29”
1116	3139 267 20471	Side I/O + Control [D]
1160	3139 267 21621	Front Interf. assy [J]
8278	3139 131 07591	Cable 4p280 1100/2x2

5203⚠	2422 549 00132	Coil degaus 29"WR
5203⚠	3139 128 23971	Coil degaus HR32WR
5205	3104 308 20961	Coil canceller
5213	2422 264 00491	Loudsp. 8Ω 10W FR
5214	2422 264 00491	Loudsp. 8Ω 10W FR

Large Signal Panel [A]

Various

1244	2422 025 16382	Connector 3p m
1317	4822 267 10637	Connector 5p
1335	3104 301 08281	Connector 1p
1351	4822 265 41113	Connector 7p
1354	2422 500 00004	Socket CRT 10p 32”
1354	2422 500 80087	Socket CRT 9p 29”
1361	2422 025 16382	Connector 3p m
1382	4822 267 10735	Connector 3p
1401	4822 265 41113	Connector 7p
1404	4822 265 20723	Connector 2p
1452	4822 267 10735	Connector 3p
1500	2422 086 10905	Fuse 4A
1501	2422 090 01101	Soc Fuse 1P Female
1502	2422 090 01101	Soc Fuse 1P Female
1503	2422 132 07467	Relay 1p 12V 5A LKS1AF
1504	4822 265 20723	Connector 2p
1505	2422 025 16374	Connector 2p m
1631	2422 025 08333	Connector 12p m
1904	2422 025 19265	Connector 5p m Bk
1911	4822 267 10734	Connector 5p
8361	3104 311 00141	Cable 3p/340/3p
8400	3139 131 05301	Cable 5p/400/5p
8401	3139 131 03591	Cable 7P 560mm
8404	3104 311 01951	Cable 2p3/560/2p4 Bk
8452	3104 311 06261	Cable 2p/560/2p3
8582	3139 131 07111	Cable 12p340/12p
8583	3139 131 05301	Cable 5p/400/5p
8584	3139 131 07071	Cable 7p/340/3p
8587	3139 131 06751	Cable 3p/340/3p

2233	3198 024 44730	47nF 50V 0603
2248	4822 124 41751	47µF 20% 50V
2313	4822 124 12373	47µF 20% 250V
2319	4822 122 30043	10nF 80% 63V
2324	4822 121 70581	1.5nF 5% 2kV
2332	4822 126 13193	4.7nF 10% 63V
2333	3198 016 36810	680pF 25V 0603
2336	3198 017 33330	33nF 20% 16V 0603
2338	2022 318 00109	100nF 250V
2339	2022 318 00109	100nF 250V
2340	2022 318 00109	100nF 250V
2343	3198 016 36810	680pF 25V 0603
2344	4822 126 13193	4.7nF 10% 63V
2346	3198 017 33330	33nF 20% 16V 0603
2347	4822 124 80791	470µF 20% 16V
2348	3198 024 44730	47nF 50V 0603
2352	4822 126 13193	4.7nF 10% 63V
2353	3198 016 36810	680pF 25V 0603
2356	3198 017 33330	33nF 20% 16V 0603
2361	2238 586 59812	100nF 20% 50V 0603
2363	4822 124 40764	22µF 100V
2364	2020 557 90732	4.7nF 10% 250V
2365	4822 126 13193	4.7nF 10% 63V
2367	2238 586 59812	100nF 20% 50V 0603
2368	4822 124 40764	22µF 100V
2369	4822 126 14241	330pF 0603 50V
2370	2238 586 59812	100nF 20% 50V 0603
2371	4822 126 11663	12pF 5% 50V 0603
2372	4822 126 11663	12pF 5% 50V 0603
2373	4822 126 11663	12pF 5% 50V 0603
2375	3198 017 34730	47nF 16V 0603
2381	4822 124 40433	47µF 20% 25V
2382	4822 126 13193	4.7nF 10% 63V
2383	2238 930 11541	220pF 5% 200V
2384	2238 586 59812	100nF 20% 50V 0603
2385	2238 586 59812	100nF 20% 50V 0603
2386	3198 017 34730	47nF 16V 0603
2387	4822 126 14507	18pF 5% 50V 0603
2388	4822 126 13193	4.7nF 10% 63V
2389	2238 586 59812	100nF 20% 50V 0603
2390	4822 124 11947	10µF 20% 16V
2402	2020 558 00039	220pF 10% 3.15kV
2404	2038 035 13805	47µF 20% 160V
2406	2020 558 00039	220pF 10% 3.15kV
2407	2022 333 00295	68nF 5% 400V
2408	4822 126 14043	1µF +80-20% 16V 0805
2409	4822 126 12105	33nF 5% 50V 0805
2410	4822 126 14585	100nF 10% 0805 50V
2411	2020 558 90611	1.8nF 10% 2kV
2412	4822 121 70617	10nF 5% 1.6kV
2413	4822 121 10575	27NF 5% 1600V
2413	4822 121 10653	22nF 5% 630V
2417	2022 333 00091	680nF 10% 250V
2418	2022 333 00163	360nF 5% 250V
2419	2022 333 00087	510nF 5% 250V
2419	2038 301 00312	1.2µF 5% 250V
2425	5322 126 11583	10nF 10% 50V 0603
2427	5322 122 31866	6.8nF 10% 63V
2431	4822 126 13185	680pF 10% 500V
2432	2238 586 59812	100nF 20% 50V 0603
2448	2238 930 55618	470pF 200V
2449	4822 124 80791	470µF 20% 16V
2450	4822 121 40434	330nF 10% 100V
2451	4822 121 40434	330nF 10% 100V
2452	4822 126 14238	2.2nF 50V 0603
2453	4822 126 14238	2.2nF 50V 0603
2454	2020 012 00037	2200µF 20% 16V
2455	4822 122 32542	47nF 10% 63V
2456	4822 124 41828	1µF 20% 250V
2457	2238 930 55618	470pF 200V
2459	2238 930 55618	470pF 200V
2460	2020 012 00037	2200µF 20% 16V
2461	4822 124 41751	47µF 20% 50V
2462	2020 552 96683	220nF 10% 50V
2463	2020 552 96683	220nF 10% 50V
2464	2222 780 19867	2.2µF 16V 0805
2465	2222 780 19867	2.2µF 16V 0805
2466	2020 557 00005	330pF 100V
2468	5322 121 42578	100nF 5% 250V
2469	5322 124 40641	10µF 20% 100V
2470	2222 930 56627	2.2nF 10% 200V 0805
2471	4822 126 14238	2.2nF 50V 0603
2473	4822 126 14238	2.2nF 50V 0603
2476	4822 122 33177	10nF 20% 50V
2477	2238 580 15637	12nF 10% 50V 0805
2478	4822 126 14241	330pF 0603 50V
2479	2020 552 96275	12nF 10% 50V 0603
2488	4822 121 51319	1µF 10% 63V
2489	4822 124 40248	10µF 20% 63V
2492	2238 930 55618	470pF 200V
2493	2238 930 55618	470pF 200V
2494	2238 930 55618	470pF 200V
2495	2020 552 96424	100nF 10% 50V 0603
2497	4822 126 13883	220pF 5% 50V
2498	4822 126 14585	100nF 10% 0805 50V
2499	4822 126 14585	100nF 10% 0805 50V
2500	2222 338 22474	470nF 20% 275V
2501	4822 126 12793	2.2nF 10% 2kV
2503	4822 126 12793	2.2nF 10% 2kV
2504	4822 126 12793	2.2nF 10% 2kV
2505	2020 024 90773	330µF 400V
2506	4822 121 10798	33nF 5% 400V
2508	2222 338 22104	100nF 20% 275V
2509	4822 126 14335	1nF 10% 0805 100V
2510	4822 124 81151	22µF 50V
2511	4822 124 81151	22µF 50V
2512	2238 586 59812	100nF 20% 50V 0603
2513	4822 126 13881	470pF 5% 50V
2514	4822 126 13862	1.5nF 10% 2kV
2515	5322 126 11578	1nF 10% 50V 0603
2516	2238 586 59812	100nF 20% 50V 0603
2517	5322 126 11578	1nF 10% 50V 0603
2519	4822 126 13881	470pF 5% 50V
2520	2238 586 59812	100nF 20% 50V 0603
2521	3198 017 34730	47nF 16V 0603
2522	4822 126 13881	470pF 5% 50V
2523	4822 126 13682	100pF 5% 1kV
2526	2020 552 94427	100pF 5% 50V
2528	4822 121 51252	470nF 5% 63V
2535	2020 021 00092	4700µ 6.3V
2536	4822 124 81144	1000µF 16V
2538	5322 126 11578	1nF 10% 50V 0603
2539	4822 122 31177	470pF 10% 500V
2541	4822 124 40433	47µF 20% 25V
2542	2020 554 90199	1.5nF 250V
2543	2238 586 59812	100nF 20% 50V 0603
2544	4822 126 10206	2.2nF 10% 500V
2546	2020 552 00183	2.2µF 10% 6.3V 0603
2551	4822 126 13449	1nF 10% 2kV
2552	2020 021 00112	150µ 160V
2553	4822 126 14226	82pF 5% 50V 0603
2561	5322 122 32331	1nF 10% 100V
2562	4822 124 12417	2200µF 20% 25V
2563	4822 124 12417	2200µF 20% 25V
2564	2222 580 15649	100nF 10% 50V 0805
2565	5322 122 32331	1nF 10% 100V
2570	2252 811 95017	470pF 10% 250V
2571	3198 017 31530	15nF 20% 50V 0603
2572	5322 126 11583	10nF 10% 50V 0603
2578	4822 126 14238	2.2nF 50V 0603
2582	4822 124 22726	4.7µF 20% 35V
2583	2020 552 96637	10µF 10% 6.3V 0805
2584	2020 021 91528	560µF 20% 6V3
2591	2020 552 00027	4.7µF 2% 6.3V 0603
2676	4822 124 40769	4.7µF 20% 100V
2682	3198 017 41050	1µF 10V 0603
2975	4822 126 13883	220pF 5% 50V
2976	4822 126 13883	220pF 5% 50V
2986	2020 552 96424	100nF 10% 50V 0603
2987	2020 552 96424	100nF 10% 50V 0603
2988	2020 552 96424	100nF 10% 50V 0603
2989	4822 126 13879	220nF +80-20% 16V
2990	3198 016 31020	1nF 25V 0603
2991	4822 124 80604	47µF 20% 50V
2992	4822 126 13879	220nF +80-20% 16V
2993	3198 016 31020	1nF 25V 0603
2994	3198 017 34730	47nF 16V 0603
2995	3198 017 34730	47nF 16V 0603
2996	3198 017 34730	47nF 16V 0603
2997	3198 017 34730	47nF 16V 0603
2998	4822 124 80604	47µF 20% 50V

3241	4822 051 30101	100Ω 5% 0.062W
3242	4822 051 30101	100Ω 5% 0.062W
3305	4822 052 10108	1Ω 5% 0.33W
3306	4822 052 10568	5.6Ω 5% 0.33W
3306	4822 052 11688	6Ω8 5% 0.5W
3307	4822 052 10568	5.6Ω 5% 0.33W
3307	4822 052 11338	3.3Ω 5% 0,5W
3317	4822 050 11002	1kΩ 1% 0.4W
3318	4822 052 10109	10Ω 5% 0.33W
3319	4822 051 30154	150kΩ 5% 0.062W
3320	4822 051 30223	22kΩ 5% 0.062W
3321	4822 051 30273	27kΩ 5% 0.062W
3322	4822 051 30154	150kΩ 5% 0.062W
3325	3198 021 31820	1.8kΩ 5% 0.062W 0603
3331	4822 116 52175	100Ω 5% 0.5W
3332	3198 013 04710	470Ω 20% 0.5W
3333	4822 116 52175	100Ω 5% 0.5W
3334	3198 013 04710	470Ω 20% 0.5W
3335	4822 116 52175	100Ω 5% 0.5W
3336	3198 013 04710	470Ω 20% 0.5W
3337	2322 242 13104	100kΩ 20W
3338	4822 051 30222	2.2kΩ 5% 0.062W
3339	4822 051 30272	2.7kΩ 5% 0.062W
3340	4822 051 30102	1kΩ 5% 0.062W
3341	2322 242 13104	100kΩ 20W
3342	4822 051 30272	2.7kΩ 5% 0.062W
3343	4822 051 30222	2.2kΩ 5% 0.062W
3344	4822 050 11002	1kΩ 1% 0.4W
3345	4822 050 23309	33Ω 1% 0,6W
3347	3198 013 01520	1.5kΩ 20% 0.5W
3348	4822 050 11002	1kΩ 1% 0.4W
3350	4822 116 52244	15kΩ 5% 0.5W
3351	2306 207 03151	150Ω 5% 0.5W
3352	2322 242 13104	100kΩ 20W
3353	4822 051 30222	2.2kΩ 5% 0.062W
3354	4822 051 30272	2.7kΩ 5% 0.062W
3355	4822 051 30102	1kΩ 5% 0.062W
3357	2122 552 00004	1mA 18V 0603
3359	4822 051 30682	6.8Ω 5% 0.062W
3360	4822 051 30221	220Ω 5% 0.062W

3361	4822 050 24701	470Ω 1% 0.6W
3362	2120 108 94133	R Fuse 10Ω
3363	4822 051 30561	560Ω 5% 0.062W
3364	4822 051 20108	1Ω 5% 0.1W
3365	4822 051 30472	4.7Ω 5% 0.062W
3366	4822 051 30683	68kΩ 5% 0.062W
3367	4822 116 52297	68kΩ 5% 0.5W
3368	4822 051 30561	560Ω 5% 0.062W
3370	4822 051 20108	1Ω 5% 0.1W
3371	2312 915 11002	1kΩ 1% 0.5W
3372	2312 915 11002	1kΩ 1% 0.5W
3373	2322 257 41152	1.5kΩ 5W
3375	4822 051 30681	680Ω 5% 0.062W
3377	4822 051 30272	2.7kΩ 5% 0.062W
3378	4822 051 30221	220Ω 5% 0.062W
3380	4822 051 30222	2.2kΩ 5% 0.062W
3381	4822 051 30222	2.2kΩ 5% 0.062W
3385	4822 051 30681	680Ω 5% 0.062W
3389	2120 108 94132	1Ω 1206
3392	4822 051 30271	270Ω 5% 0.062W
3393	4822 051 30109	10Ω 5% 0.062W
3394	4822 051 30472	4.7Ω 5% 0.062W
3395	4822 116 52219	330Ω 5% 0.5W
3396	3198 021 31820	1.8kΩ 5% 0.062W 0603
3397	2122 552 00004	1mA 18V 0603
3401	4822 050 24703	47kΩ 1% 0.6W
3402	4822 116 52219	330Ω 5% 0.5W
3403	4822 050 11002	1kΩ 1% 0.4W
3408	4822 117 13632	100kΩ 1% 0603 0.62W
3410	4822 051 30221	220Ω 5% 0.062W
3411	4822 051 30102	1kΩ 5% 0.062W
3413	2122 101 01386	1kΩ 5% CRB 0.25W
3414	4822 050 24708	4.7Ω 1% 0.6W
3415	4822 050 24708	4.7Ω 1% 0.6W
3416	4822 051 20479	47Ω 5% 0.1W
3417	4822 051 30684	680kΩ 5% 0.062W
3418	4822 050 11002	1kΩ 1% 0.4W
3418	4822 116 52269	3.3kΩ 5% 0.5W
3419	4822 050 24708	4.7Ω 1% 0.6W
3421	4822 116 52182	15Ω 5% 0.5W
3425	4822 050 21004	100kΩ 1% 0.6W
3425	4822 050 28203	82kΩ 1% 0.6W
3426	4822 052 10398	3.9Ω 5% 0,33W
3432	4822 050 24708	4.7Ω 1% 0.6W
3433	4822 053 12279	27Ω 5% 3W
3450	4822 052 10828	8.2Ω 5% 0,33W
3451	4822 050 24708	4.7Ω 1% 0.6W
3452	2138 112 01568	5.6Ω 5% 0805
3455	4822 052 11108	1Ω 5% 0.5W
3456	2306 207 03277	0Ω
3458	4822 052 11478	4.7Ω 5% 0.5W
3459	4822 051 30102	1kΩ 5% 0.062W
3461	4822 051 30152	1.5Ω 5% 0.062W
3463	4822 051 30152	1.5Ω 5% 0.062W
3466	4822 052 10568	5.6Ω 5% 0.33W
3467	4822 116 83872	220Ω 5% 0.5W
3468	4822 116 83872	220Ω 5% 0.5W
3470	3198 039 27080	2.7Ω 1%
3471	3198 039 27080	2.7Ω 1%
3471	4822 050 22208	2.2Ω 1% 0,6W
3472	4822 050 22208	2.2Ω 1% 0,6W
3473	2322 194 63109	10Ω 5% 2W
3477	4822 116 52231	820Ω 5% 0.5W
3479	4822 051 30102	1kΩ 5% 0.062W
3480	4822 051 30183	18kΩ 5% 0.062W
3480	4822 051 30683	68kΩ 5% 0.062W
3485	4822 052 10228	2.2Ω 5% 0.33W
3486	4822 052 10108	1Ω 5% 0.33W
3487	2120 105 00041	820Ω 5% 2W
3487	4822 053 11102	1KΩ 5% 2W
3488	4822 053 20224	220KΩ 5% 0.25W
3490	4822 050 21501	150Ω 1% 0,6W
3491	4822 051 30273	27kΩ 5% 0.062W
3491	4822 051 30683	68kΩ 5% 0.062W
3492	4822 116 52283	4.7kΩ 5% 0.5W
3493	4822 052 11228	2R20 5% 0,5W
3494	4822 116 21239	VDR 1mA/612V
3495	4822 116 21239	VDR 1mA/612V
3499	4822 116 52285	470kΩ 5% 0.5W
3502	4822 116 83872	220Ω 5% 0.5W
3503	4822 252 11215	DSP301N-A21F
3504	4822 053 21155	1.5MΩ 5% 0.5W
3505	2122 550 00171	1mΩ 612V
3508	3198 013 04710	470Ω 20% 0.5W
3510	2122 612 00055	4.7Ω 3W
3511	4822 050 24708	4.7Ω 1% 0.6W
3512	4822 117 11817	1.2kΩ 1% 0.0625W
3513	4822 052 10222	2.2kΩ 5% 0.33W
3514	4822 052 10479	47Ω 5% 0.33W
3515	4822 050 11002	1kΩ 1% 0.4W
3516	3198 012 11570	0.15Ω 5% 1W
3517	2322 704 63004	300KΩ
3518	4822 051 30332	3.3Ω 5% 0.062W
3519	4822 116 52244	15kΩ 5% 0.5W
3520	3198 012 11570	0.15Ω 5% 1W
3521	4822 117 11817	1.2kΩ 1% 0.0625W
3522	4822 051 30563	56kΩ 5% 0.062W
3523	2122 663 00018	4.7Ω 20%
3524	4822 116 52269	3.3kΩ 5% 0.5W
3525	2312 915 13004	300kΩ
3526	2322 750 61501	150Ω 1206
3527	4822 117 12925	47kΩ 1% 0.063W 0603
3528	4822 051 30105	1MΩ 5% 0.062W
3529	4822 053 20155	1.5MΩ 5% 0.25W
3530	4822 051 30563	56kΩ 5% 0.062W
3531	4822 050 11002	1kΩ 1% 0.4W
3532	4822 051 20158	1.5Ω 5% 0.1W
3533	4822 051 20128	1R20 5% 0,1W
3534	2322 734 63309	33Ω 1% 0.1W 0805
3535	4822 052 11108	1Ω 5% 0.5W
3536	4822 052 10221	220Ω 5% 0.33W
3540	4822 051 30683	68kΩ 5% 0.062W
3541	4822 117 12925	47kΩ 1% 0.063W 0603
3542	4822 051 30681	680Ω 5% 0.062W
3543	4822 051 30103	10kΩ 5% 0.062W
3544	2322 704 62202	2.2kΩ 1% 0603
3545	2322 704 62202	2.2kΩ 1% 0603
3546	4822 051 30683	68kΩ 5% 0.062W
3549	4822 117 12925	47kΩ 1% 0.063W 0603
3550	4822 116 52269	3.3kΩ 5% 0.5W
3551	4822 051 30223	22kΩ 5% 0.062W
3553	2322 704 61803	18kΩ 1% 0603
3554	4822 051 30103	10kΩ 5% 0.062W
3563	4822 116 83872	220Ω 5% 0.5W
3565	4822 051 30273	27kΩ 5% 0.062W
3567	4822 051 30154	150kΩ 5% 0.062W
3568	4822 117 12925	47kΩ 1% 0.063W 0603
3571	4822 116 52228	680Ω 5% 0.5W
3573	4822 051 30153	15kΩ 5% 0.062W
3574	2322 702 60184	180kΩ 5% 0603
3575	4822 050 28203	82kΩ 1% 0.6W
3576	5322 117 13034	1.5kΩ 1% 0.063W 0603
3579	4822 116 52256	2.2kΩ 5% 0.5W
3580	4822 117 12891	220kΩ 1%
3588	4822 051 30334	330kΩ 5% 0.062W
3589	4822 051 30103	10kΩ 5% 0.062W
3593	4822 051 30103	10kΩ 5% 0.062W
3594	4822 051 30223	22kΩ 5% 0.062W
3595	4822 117 13632	100kΩ 1% 0603 0.62W
3596	4822 051 30392	3.9Ω 5% 0.063W 0603
3597	4822 117 12891	220kΩ 1%
3598	4822 053 20334	330kΩ 5% 0.25W
3688	4822 051 30103	10kΩ 5% 0.062W
3985	4822 051 30103	10kΩ 5% 0.062W
3988	4822 051 30123	12kΩ 5% 0.1W
3989	4822 051 30109	10Ω 5% 0.062W
3991	4822 051 30103	10kΩ 5% 0.062W
3992	4822 051 30123	12kΩ 5% 0.1W
3993	4822 051 30109	10Ω 5% 0.062W
3998	4822 117 11817	1.2kΩ 1% 0.0625W
4303	4822 051 30008	Jumper 0603
4304	4822 051 30008	Jumper 0603
4305	4822 051 30008	Jumper 0603
4306	4822 051 30008	Jumper 0603
4307	4822 051 30008	Jumper 0603
4308	4822 051 30008	Jumper 0603
4309	4822 051 30008	Jumper 0603
4310	4822 051 20008	Jumper 0805
4321	4822 051 30008	Jumper 0603
4322	4822 051 20008	Jumper 0805
4330	4822 051 30008	Jumper 0603
4402	4822 051 30008	Jumper 0603
4403	4822 051 30008	Jumper 0603
4420	4822 051 20008	Jumper 0805
4421	4822 051 30008	Jumper 0603
4501	4822 051 20008	Jumper 0805
4550	4822 051 30008	Jumper 0603
4685	4822 051 30008	Jumper 0603
4723	4822 051 30008	Jumper 0603
4905	4822 051 20008	Jumper 0805
4973	4822 051 20008	Jumper 0805
4974	4822 051 20008	Jumper 0805
4985	4822 051 30008	Jumper 0603

5250	2422 549 43062	Bead 600Ω at 100MHz
5251	2422 549 43062	Bead 600Ω at 100MHz
5303	4822 157 11867	5.6µH 5%
5304	4822 526 10704	Bead 50 Ω at 100MHz
5308	4822 157 11867	5.6µH 5%
5339	4822 526 10704	Bead 50 Ω at 100MHz
5361	4822 157 11411	Bead 80Ω at 100MHz
5401	3104 308 20471	Linearity coil 28"
5401	3104 308 20591	Linearity coil 32"
5402	2422 531 00057	SD12404-02 Y
5406	2422 531 02435	C948-02
5408	2422 531 02357	Bridge coil W7132-004Y
5410	2422 536 00059	12µH 10%
5411	4822 157 71097	0.56µH 10%
5450	2422 531 00079	UU 1372.7077D
5450⚠	2422 531 00081	UU 1372.0130A
5452	4822 157 51462	10µH 10%
5453	4822 157 11771	0.09µH 10%
5456	4822 526 10704	Bead 50 Ω at 100MHz
5500	4822 157 10476	DMF-2820H
5501	4822 157 11523	Line filter 5mH/2A
5502	2422 549 45296	Mains harm. filter 38mH
5511	4822 526 10704	Bead 50 Ω at 100MHz
5512	2422 531 02632	SS42316-0
5532	4822 526 10704	Bead 50 Ω at 100MHz
5551	4822 526 10704	Bead 50 Ω at 100MHz
5552	4822 157 71401	27µH
5561	4822 526 10704	Bead 50 Ω at 100MHz
5562	4822 526 10704	Bead 50 Ω at 100MHz
5564	2422 535 94637	4.7µH 20% LHL08
5565	4822 157 11411	Bead 80Ω at 100MHz
5566	4822 157 11411	Bead 80Ω at 100MHz
5567	4822 157 11411	Bead 80Ω at 100MHz

6234	9322 077 99685	BZX384-B33-V
6307	4822 130 11416	PDZ6.8B
6325	4822 130 10838	UDZ3.3B
6331	9322 197 45703	BAV21WS
6332	9322 197 45703	BAV21WS
6333	9322 197 45703	BAV21WS
6334	4822 130 10838	UDZ3.3B
6361	4822 130 11397	BAS316
6362	4822 130 11397	BAS316
6403	9322 185 83668	SM ES1D
6404	9322 169 61687	DMV1500M
6405	4822 130 11397	BAS316
6409	4822 130 11397	BAS316
6410	4822 130 11397	BAS316
6411	4822 130 11397	BAS316
6452	4822 130 31607	RGP10D
6453	9334 939 60673	RGP10G
6456	5322 130 31938	BYV27-200
6457	5322 130 31938	BYV27-200
6458	9340 548 69115	PDZ27B
6459	9340 548 69115	PDZ27B
6461	9322 128 65685	RS1G
6464	9340 548 69115	PDZ27B
6465	9340 260 20115	BAW56W
6466	9322 185 83668	SM ES1D
6469	3139 120 52021	BYV29X-500
6471	4822 130 31607	RGP10D
6474	4822 130 34379	BZX79-B27
6476	5322 130 32296	BZV85-C10
6478	4822 130 10837	UDZS8.2B
6500	3198 010 10640	Bridge cell GBU4K
6509	4822 130 31607	RGP10D
6511	4822 130 31607	RGP10D
6512	4822 130 11397	BAS316
6514	4822 130 11397	BAS316
6532	9322 197 45703	BAV21WS
6533	9322 197 45703	BAV21WS
6536	9322 212 98673	SB260
6538	4822 130 11397	BAS316
6539	9322 212 82685	UDZS13B
6540	4822 130 11152	UDZ18B
6541	9322 129 41685	BZM55-C12
6548	9322 161 46687	STPS745FP
6551	9337 443 80127	BYT28-500
6562	9322 161 78682	SB360L-7024
6563	9322 161 78682	SB360L-7024
6564	4822 130 11397	BAS316
6565	4822 130 10837	UDZS8.2B
6567	4822 130 11397	BAS316
6575	4822 130 31878	1N4003G
6578	4822 130 11397	BAS316
6581	9322 197 45703	BAV21WS
6682	4822 130 10838	UDZ3.3B
6684	9322 163 91685	BZX384-C6V2

7330	4822 209 33365	TDA6111Q/N4
7331	4822 130 60373	BC856B
7332	4822 130 41246	BC327-25
7333	4822 130 40981	BC337-25
7340	4822 209 33365	TDA6111Q/N4
7350	4822 209 33365	TDA6111Q/N4
7361	5322 130 60159	BC846B
7362	4822 130 60373	BC856B
7363	9322 195 05687	KTB631KY
7364	9322 195 14687	KTD600KY

7365	4822 130 60887	BF840
7366	9352 628 51112	TDA8941p/N1
7403	4822 130 44568	BC557B
7404	9340 547 13215	BSH103
7405	9340 591 84127	ON5277
7406	9322 191 77687	STP6NK60ZFP
7406	9322 194 27687	STP3NK60ZFP
7407	4822 130 10255	MUN2213
7455	9352 637 54112	TDA4863J/V1
7510	9352 720 43118	TEA1506T/N1
7511	9352 720 43118	TEA1506T/N1
7512	9322 229 41687	FET STF8NK85Z
7513	8238 274 02070	TCET1103G
7516	8238 274 02070	TCET1103G
7517	5322 130 60159	BC846B
7525	9322 194 21687	STP5NK80ZFP
7532	4822 130 60373	BC856B
7541	4822 130 60373	BC856B
7542	4822 209 14933	TL431IZ
7545	9322 179 08685	SI2305DS
7547	4822 130 11155	PDTC114ET
7548	4822 130 11155	PDTC114ET
7549	4822 130 62343	IMX1
7561	3198 010 42310	BC847BW
7567	5322 130 60159	BC846B
7571	4822 209 14933	TL431IZ
7573	4822 130 11155	PDTC114ET
7990	4822 209 32641	TDA2616Q
7991	4822 130 63732	MMUN2212

Software

0800	3139 127 05993	NVM
0801	3139 127 06002	µP Flash
0802	3139 127 06012	HDMI

Small Signal Board [B]

Various

1000	3139 147 20911	Tuner UV1316E/A I-4
1002	4822 242 81436	Filter OFWK3953M
1003	2422 549 44341	38.9MHz OFWK9656M
1004	4822 267 10973	Connector 1p
1060	2422 543 01386	Xtal 4MHz 20p
1101	2422 026 05789	Socket Cinch 9p f
1150	4822 267 10771	Socket 2 x SCART
1201	2422 543 01526	Xtal 10MHz 12p NX8045
1205	4822 267 10637	Connector 5p
1285	2422 025 19517	Connector 6p Bk m
1300	2422 033 00505	Socket HDMI 19p f
1301	2422 543 01517	Xtal 28M322 18p NX5032
1302	2422 025 18381	Connector 2p m
1400	2422 025 18739	Connector 5p m
1401	2422 540 98456	Resonator 12MHz
1580	2422 025 18741	Connector 6p m
1581	2422 025 18742	Connector 7p m
1582	2422 025 18736	Connector 12p m
1586	2422 025 18738	Connector 3p m
1587	2422 025 19515	Connector 3p m
1600	4822 267 10459	Connector 3p
1721	2422 543 01374	Xtal 14.318MHz
1901	2422 543 01461	Xtal 18.432MHz 12p

2000	4822 124 23002	10µF 16V
2001	3198 024 44730	47nF 50V 0603
2002	3198 030 71090	10µF 20% 35V
2003	4822 124 11767	470µF 20% 25V
2004	2238 586 59812	100nF 20% 50V 0603
2005	5322 126 11583	10nF 10% 50V 0603
2060	3198 017 44740	470nF 10V 0603
2061	3198 017 42240	220nF 16V Y5V 0603
2062	4822 126 14247	1.5nF 50V 0603
2063	4822 122 33761	22pF 5% 50V
2065	2238 586 59812	100nF 20% 50V 0603
2066	5322 126 11583	10nF 10% 50V 0603
2067	2020 552 96823	10µF 16V
2068	2238 586 59812	100nF 20% 50V 0603
2069	3198 017 44740	470nF 10V 0603
2070	5322 126 11583	10nF 10% 50V 0603
2071	5322 126 11583	10nF 10% 50V 0603
2072	4822 126 14315	390pF 5% 50V 0603
2101	3198 016 31020	1nF 25V 0603
2102	4822 126 14241	330pF 0603 50V
2103	4822 126 14491	2.2µF 10V 0805
2104	3198 016 31020	1nF 25V 0603
2105	4822 126 14241	330pF 0603 50V
2106	4822 126 14491	2.2µF 10V 0805
2107	2020 552 96823	10µF 16V
2108	2020 552 96823	10µF 16V
2109	2020 552 96823	10µF 16V
2110	2020 552 96823	10µF 16V
2112	5322 126 11583	10nF 10% 50V 0603
2113	2020 552 96823	10µF 16V
2114	2020 552 96823	10µF 16V
2115	3198 016 31020	1nF 25V 0603
2116	4822 126 14241	330pF 0603 50V
2117	4822 126 14491	2.2µF 10V 0805
2118	3198 016 31020	1nF 25V 0603
2119	4822 126 14241	330pF 0603 50V
2120	4822 126 14491	2.2µF 10V 0805
2121	3198 016 31020	1nF 25V 0603
2122	4822 126 14241	330pF 0603 50V
2123	4822 126 14491	2.2µF 10V 0805
2124	3198 016 31020	1nF 25V 0603
2125	4822 126 14241	330pF 0603 50V
2126	4822 126 14491	2.2µF 10V 0805
2128	2020 552 96823	10µF 16V
2150	4822 126 14241	330pF 0603 50V
2151	4822 126 14508	180pF 5% 50V 0603
2152	4822 126 14241	330pF 0603 50V
2153	4822 126 14508	180pF 5% 50V 0603
2155	2020 552 00183	2.2µF 10% 6.3V 0603
2157	2020 552 00183	2.2µF 10% 6.3V 0603
2162	4822 126 14241	330pF 0603 50V
2163	4822 126 14508	180pF 5% 50V 0603
2164	4822 126 14241	330pF 0603 50V
2165	4822 126 14508	180pF 5% 50V 0603
2167	2020 552 00183	2.2µF 10% 6.3V 0603
2168	2238 586 59812	100nF 20% 50V 0603
2169	2020 552 00183	2.2µF 10% 6.3V 0603
2176	2238 586 59812	100nF 20% 50V 0603
2177	2238 586 59812	100nF 20% 50V 0603
2201	2238 586 59812	100nF 20% 50V 0603
2202	3198 016 31590	15pF 10% 50V 0603
2203	3198 016 31590	15pF 10% 50V 0603
2204	2020 552 94427	100pF 5% 50V
2205	2020 552 96823	10µF 16V
2206	3198 016 31020	1nF 25V 0603
2207	2020 552 94427	100pF 5% 50V
2208	2020 552 94427	100pF 5% 50V
2209	2020 552 94427	100pF 5% 50V
2210	2020 552 94427	100pF 5% 50V
2213	2020 552 96823	10µF 16V
2214	4822 124 23002	10µF 16V
2215	2238 586 59812	100nF 20% 50V 0603
2216	2238 586 59812	100nF 20% 50V 0603
2218	2238 586 59812	100nF 20% 50V 0603
2219	2238 586 59812	100nF 20% 50V 0603
2222	5322 126 11583	10nF 10% 50V 0603
2223	5322 126 11583	10nF 10% 50V 0603
2300	5322 124 41945	22µF 20% 35V
2301	2238 586 59812	100nF 20% 50V 0603
2302	2020 021 91557	100µF 20% 16V
2303	5322 126 11583	10nF 10% 50V 0603
2304	2020 552 96823	10µF 16V
2305	2238 586 59812	100nF 20% 50V 0603
2306	2238 586 59812	100nF 20% 50V 0603
2307	2238 586 59812	100nF 20% 50V 0603
2308	2238 586 59812	100nF 20% 50V 0603
2309	3198 016 31020	1nF 25V 0603
2310	3198 016 31020	1nF 25V 0603
2311	3198 016 31020	1nF 25V 0603
2312	3198 016 31020	1nF 25V 0603
2313	3198 016 31020	1nF 25V 0603
2314	3198 016 31020	1nF 25V 0603
2315	3198 016 31020	1nF 25V 0603
2316	3198 016 31020	1nF 25V 0603
2317	2020 552 96823	10µF 16V
2318	2238 586 59812	100nF 20% 50V 0603
2319	2238 586 59812	100nF 20% 50V 0603
2320	2238 586 59812	100nF 20% 50V 0603
2321	2238 586 59812	100nF 20% 50V 0603
2322	3198 016 31020	1nF 25V 0603
2323	3198 016 31020	1nF 25V 0603
2324	3198 016 31020	1nF 25V 0603
2325	3198 016 31020	1nF 25V 0603
2326	3198 016 31020	1nF 25V 0603
2327	3198 016 31020	1nF 25V 0603
2328	2020 552 96823	10µF 16V
2329	2238 586 59812	100nF 20% 50V 0603
2330	2238 586 59812	100nF 20% 50V 0603
2331	3198 016 31020	1nF 25V 0603
2332	3198 016 31020	1nF 25V 0603
2333	3198 016 31020	1nF 25V 0603
2334	3198 016 31020	1nF 25V 0603
2335	5322 126 11583	10nF 10% 50V 0603
2336	3198 016 31020	1nF 25V 0603
2337	2238 586 59812	100nF 20% 50V 0603
2338	2020 552 96823	10µF 16V
2339	3198 016 31020	1nF 25V 0603
2340	3198 016 31020	1nF 25V 0603
2341	3198 017 41050	1µF 10V 0603
2342	3198 016 31020	1nF 25V 0603
2343	5322 126 11583	10nF 10% 50V 0603
2344	3198 017 41050	1µF 10V 0603
2345	3198 016 31020	1nF 25V 0603
2346	5322 126 11583	10nF 10% 50V 0603
2347	4822 126 14507	18pF 5% 50V 0603
2348	4822 126 14507	18pF 5% 50V 0603
2349	3198 016 31020	1nF 25V 0603
2350	3198 016 31020	1nF 25V 0603
2400	2020 552 96823	10µF 16V
2401	2238 586 59812	100nF 20% 50V 0603
2403	2238 586 59812	100nF 20% 50V 0603
2404	4822 124 80151	47µF 16V
2405	2238 586 59812	100nF 20% 50V 0603
2406	2020 552 94743	5.6nF 50V 0603
2407	4822 122 33741	10pF 10% 50V
2408	4822 126 14225	56pF 5% 50V 0603
2410	3198 016 31020	1nF 25V 0603
2412	2238 586 59812	100nF 20% 50V 0603
2413	2020 552 96823	10µF 16V
2414	2238 586 59812	100nF 20% 50V 0603
2415	3198 016 31020	1nF 25V 0603
2416	4822 126 14225	56pF 5% 50V 0603
2418	2238 586 59812	100nF 20% 50V 0603
2420	2238 586 59812	100nF 20% 50V 0603
2421	4822 126 14225	56pF 5% 50V 0603
2423	4822 121 70159	0.1µF 16V
2424	2020 552 94427	100pF 5% 50V
2425	2020 552 94427	100pF 5% 50V
2426	4822 126 11785	47pF 5% 50V 0603
2427	4822 126 11669	27pF 5% 50V 0603
2428	4822 126 11669	27pF 5% 50V 0603
2429	3198 017 34730	47nF 16V 0603
2430	2020 552 96807	1µF 10% 10V 0603
2432	3198 017 41050	1µF 10V 0603
2433	2238 586 59812	100nF 20% 50V 0603
2434	4822 126 13193	4.7nF 10% 63V
2435	3198 030 82280	2.2µF 20% 50V
2436	4822 126 13881	470pF 5% 50V
2437	3198 016 38210	820pF 25V 0603
2444	3198 017 33330	33nF 20% 16V 0603
2500	2020 552 96823	10µF 16V
2502	2020 552 00183	2.2µF 10% 6.3V 0603
2503	2238 586 59812	100nF 20% 50V 0603
2506	4822 123 14018	2.2µF 10% 10V
2507	2020 552 96822	10µF 10% 25V 1210
2508	2020 552 96822	10µF 10% 25V 1210
2509	2238 916 15641	22nF 10% 25V 0603
2510	4822 126 13883	220pF 5% 50V
2511	2022 031 00373	470µF 20% 16V
2512	2022 031 00373	470µF 20% 16V
2513	2238 586 59812	100nF 20% 50V 0603
2515	2020 552 96823	10µF 16V
2560	2238 586 59812	100nF 20% 50V 0603
2587	3198 017 44740	470nF 10V 0603
2600	2020 552 96637	10µF 10% 6.3V 0805
2601	2238 586 59812	100nF 20% 50V 0603
2602	2238 586 59812	100nF 20% 50V 0603
2603	2238 586 59812	100nF 20% 50V 0603
2604	2238 586 59812	100nF 20% 50V 0603
2605	2020 552 96823	10µF 16V
2606	2020 552 96637	10µF 10% 6.3V 0805
2607	2238 586 59812	100nF 20% 50V 0603
2608	2238 586 59812	100nF 20% 50V 0603
2609	2238 586 59812	100nF 20% 50V 0603
2610	2238 586 59812	100nF 20% 50V 0603
2611	2020 552 96823	10µF 16V
2614	2020 552 96823	10µF 16V
2615	2020 552 96637	10µF 10% 6.3V 0805
2616	2238 586 59812	100nF 20% 50V 0603
2617	2238 586 59812	100nF 20% 50V 0603
2618	3198 017 34730	47nF 16V 0603
2619	3198 017 34730	47nF 16V 0603
2620	3198 017 34730	47nF 16V 0603
2622	2238 786 55648	82nF 10% 16V 0603
2623	2238 586 15635	8.2nF 10% 50V 0603
2624	2238 586 59812	100nF 20% 50V 0603
2625	2020 552 96823	10µF 16V
2626	2238 586 59812	100nF 20% 50V 0603
2627	2020 552 96823	10µF 16V
2635	4822 124 11131	47µF 6.3V
2636	4822 124 11131	47µF 6.3V
2650	5322 126 11583	10nF 10% 50V 0603
2651	5322 126 11583	10nF 10% 50V 0603
2652	5322 126 11583	10nF 10% 50V 0603
2653	5322 126 11583	10nF 10% 50V 0603
2654	5322 126 11583	10nF 10% 50V 0603
2655	5322 126 11583	10nF 10% 50V 0603
2656	5322 126 11583	10nF 10% 50V 0603
2657	5322 126 11583	10nF 10% 50V 0603
2658	5322 126 11583	10nF 10% 50V 0603
2659	5322 126 11583	10nF 10% 50V 0603
2660	5322 126 11583	10nF 10% 50V 0603

2661	5322 126 11583	10nF 10% 50V 0603
2662	5322 126 11583	10nF 10% 50V 0603
2663	5322 126 11583	10nF 10% 50V 0603
2664	5322 126 11583	10nF 10% 50V 0603
2665	5322 126 11583	10nF 10% 50V 0603
2666	5322 126 11583	10nF 10% 50V 0603
2680	5322 126 11583	10nF 10% 50V 0603
2681	5322 126 11583	10nF 10% 50V 0603
2682	5322 126 11583	10nF 10% 50V 0603
2701	2238 586 59812	100nF 20% 50V 0603
2702	2238 586 59812	100nF 20% 50V 0603
2703	5322 126 11583	10nF 10% 50V 0603
2704	2238 586 59812	100nF 20% 50V 0603
2705	2238 586 59812	100nF 20% 50V 0603
2706	5322 126 11583	10nF 10% 50V 0603
2707	5322 126 11583	10nF 10% 50V 0603
2708	5322 126 11583	10nF 10% 50V 0603
2709	5322 126 11583	10nF 10% 50V 0603
2710	5322 126 11583	10nF 10% 50V 0603
2711	4822 126 13193	4.7nF 10% 63V
2712	4822 126 13193	4.7nF 10% 63V
2713	2238 586 59812	100nF 20% 50V 0603
2714	2238 586 59812	100nF 20% 50V 0603
2715	5322 126 11583	10nF 10% 50V 0603
2716	2020 552 96823	10µF 16V
2717	2020 552 96823	10µF 16V
2718	2020 552 96823	10µF 16V
2719	2238 586 59812	100nF 20% 50V 0603
2720	4822 126 14225	56pF 5% 50V 0603
2721	2238 586 59812	100nF 20% 50V 0603
2722	2238 586 15628	2.7nF 10% 50V 0603
2723	2020 552 96749	20pF 5% 50V 0603
2724	2020 552 96749	20pF 5% 50V 0603
2725	2238 586 59812	100nF 20% 50V 0603
2726	2238 586 59812	100nF 20% 50V 0603
2727	2238 586 59812	100nF 20% 50V 0603
2728	2238 586 59812	100nF 20% 50V 0603
2729	2238 586 59812	100nF 20% 50V 0603
2730	2020 552 96823	10µF 16V
2731	2238 586 59812	100nF 20% 50V 0603
2732	2020 552 96747	30pF 5% 50V 0603
2733	2238 586 59812	100nF 20% 50V 0603
2734	2238 586 59812	100nF 20% 50V 0603
2735	2238 586 59812	100nF 20% 50V 0603
2736	2238 586 59812	100nF 20% 50V 0603
2737	2238 586 59812	100nF 20% 50V 0603
2738	2238 586 59812	100nF 20% 50V 0603
2740	2238 586 59812	100nF 20% 50V 0603
2741	2238 586 59812	100nF 20% 50V 0603
2743	2238 586 59812	100nF 20% 50V 0603
2744	2238 586 59812	100nF 20% 50V 0603
2746	2238 586 59812	100nF 20% 50V 0603
2747	2238 586 59812	100nF 20% 50V 0603
2748	2238 586 59812	100nF 20% 50V 0603
2749	2020 552 96823	10µF 16V
2750	2238 586 59812	100nF 20% 50V 0603
2751	2022 552 05636	10µF 10% 16V 1210
2752	2020 552 96823	10µF 16V
2753	2238 586 59812	100nF 20% 50V 0603
2754	2238 586 59812	100nF 20% 50V 0603
2755	2238 586 59812	100nF 20% 50V 0603
2756	2238 586 59812	100nF 20% 50V 0603
2757	2238 586 59812	100nF 20% 50V 0603
2758	2238 586 59812	100nF 20% 50V 0603
2759	2238 586 59812	100nF 20% 50V 0603
2760	2238 586 59812	100nF 20% 50V 0603
2761	2238 586 59812	100nF 20% 50V 0603
2762	2238 586 59812	100nF 20% 50V 0603
2763	2238 586 59812	100nF 20% 50V 0603
2764	2238 586 59812	100nF 20% 50V 0603
2765	2238 586 59812	100nF 20% 50V 0603
2766	2238 586 59812	100nF 20% 50V 0603
2767	2238 586 59812	100nF 20% 50V 0603
2768	2238 586 59812	100nF 20% 50V 0603
2769	2238 586 59812	100nF 20% 50V 0603
2770	2238 586 59812	100nF 20% 50V 0603
2771	4822 126 14221	68pF 5% 50V NP0 0603
2772	4822 126 14221	68pF 5% 50V NP0 0603
2773	2238 586 59812	100nF 20% 50V 0603
2774	2020 552 96823	10µF 16V
2775	2238 586 59812	100nF 20% 50V 0603
2776	2020 552 96823	10µF 16V
2777	2238 586 59812	100nF 20% 50V 0603
2778	2020 552 96823	10µF 16V
2779	2238 586 59812	100nF 20% 50V 0603
2780	2020 552 96823	10µF 16V
2781	2020 552 96823	10µF 16V
2782	2238 586 59812	100nF 20% 50V 0603
2783	2020 552 96823	10µF 16V
2784	2238 586 59812	100nF 20% 50V 0603
2785	2020 552 96823	10µF 16V
2786	2238 586 59812	100nF 20% 50V 0603
2787	2020 552 96823	10µF 16V
2788	2238 586 59812	100nF 20% 50V 0603
2789	2238 586 15628	2.7nF 10% 50V 0603
2790	2020 552 96823	10µF 16V
2791	2238 586 59812	100nF 20% 50V 0603
2792	2238 586 59812	100nF 20% 50V 0603
2794	2020 552 96823	10µF 16V
2795	2238 586 59812	100nF 20% 50V 0603
2796	2238 586 59812	100nF 20% 50V 0603
2797	2238 586 59812	100nF 20% 50V 0603
2798	2020 552 96823	10µF 16V
2901	4822 126 14225	56pF 5% 50V 0603
2902	4822 126 14225	56pF 5% 50V 0603
2903	4822 126 14225	56pF 5% 50V 0603
2906	5322 126 11578	1nF 10% 50V 0603
2907	5322 126 11578	1nF 10% 50V 0603
2908	5322 126 11578	1nF 10% 50V 0603
2909	5322 126 11578	1nF 10% 50V 0603
2910	2020 552 96823	10µF 16V
2911	4822 126 14241	330pF 0603 50V
2912	5322 126 11578	1nF 10% 50V 0603
2913	5322 126 11578	1nF 10% 50V 0603
2914	5322 126 11578	1nF 10% 50V 0603
2915	5322 126 11578	1nF 10% 50V 0603
2918	4822 126 13881	470pF 5% 50V
2920	2238 586 59812	100nF 20% 50V 0603
2921	3198 016 33380	3.3pF 50V 0603
2922	3198 016 33380	3.3pF 50V 0603
2923	3198 016 31020	1nF 25V 0603
2924	3198 016 31020	1nF 25V 0603
2925	3198 016 31020	1nF 25V 0603
2926	3198 016 31020	1nF 25V 0603
2927	3198 016 31020	1nF 25V 0603
2928	3198 016 31020	1nF 25V 0603
2929	2238 586 59812	100nF 20% 50V 0603
2930	2020 552 96823	10µF 16V
2931	2238 586 59812	100nF 20% 50V 0603
2932	2020 552 96823	10µF 16V
2933	2238 586 59812	100nF 20% 50V 0603
2934	5322 124 41945	22µF 20% 35V
2935	2020 552 96823	10µF 16V
2936	3198 016 31020	1nF 25V 0603
2937	2020 552 00132	2.2µF 10% 10V
2938	3198 016 31020	1nF 25V 0603
2939	2020 552 00132	2.2µF 10% 10V
2940	3198 017 42240	220nF 16V Y5V 0603
2941	2020 552 96823	10µF 16V
2942	2020 552 96823	10µF 16V
2943	2020 552 96823	10µF 16V
2944	2238 586 59812	100nF 20% 50V 0603
2945	2020 552 96823	10µF 16V
2946	2020 552 96637	10µF 10% 6.3V 0805
2947	2020 552 96637	10µF 10% 6.3V 0805
2948	2020 552 96637	10µF 10% 6.3V 0805
2949	2020 552 96637	10µF 10% 6.3V 0805
2950	2238 586 59812	100nF 20% 50V 0603
2951	2238 586 59812	100nF 20% 50V 0603
2952	2020 552 96637	10µF 10% 6.3V 0805
2953	2020 552 96637	10µF 10% 6.3V 0805
2954	4822 126 14491	2.2µF 10V 0805
2955	4822 126 14491	2.2µF 10V 0805
2961	2238 586 59812	100nF 20% 50V 0603
2962	4822 124 11131	47µF 6.3V
2963	4822 124 11131	47µF 6.3V
2964	2238 586 59812	100nF 20% 50V 0603
2965	3198 017 41050	1µF 10V 0603
2966	5322 126 11583	10nF 10% 50V 0603
2967	3198 017 41050	1µF 10V 0603
2968	5322 126 11583	10nF 10% 50V 0603
2969	4822 124 11131	47µF 6.3V
2970	2238 586 59812	100nF 20% 50V 0603
2971	4822 124 23002	10µF 16V
2972	4822 126 14491	2.2µF 10V 0805
2973	4822 126 14491	2.2µF 10V 0805
2974	2020 552 96637	10µF 10% 6.3V 0805

3001	4822 051 30562	5.6kΩ 5% 0.063W 0603
3002	3198 021 38220	8.2kΩ 5% 0.062W 0603
3003	4822 051 30393	39kΩ 5% 0.062W
3004	4822 051 30101	100Ω 5% 0.062W
3005	4822 051 30682	6.8Ω 5% 0.062W
3006	4822 051 30101	100Ω 5% 0.062W
3007	4822 051 30222	2.2kΩ 5% 0.062W
3008	4822 051 30222	2.2kΩ 5% 0.062W
3060	4822 051 30221	220Ω 5% 0.062W
3061	4822 051 30101	100Ω 5% 0.062W
3063	4822 051 30689	68Ω 5% 0.063W 0603
3064	4822 051 30221	220Ω 5% 0.062W
3065	4822 051 30562	5.6kΩ 5% 0.063W 0603
3066	4822 051 30472	4.7Ω 5% 0.062W
3067	4822 051 30479	47Ω 5% 0.062W
3068	4822 051 30479	47Ω 5% 0.062W
3101	4822 051 30151	150Ω 5% 0.062W
3102	4822 117 12925	47kΩ 1% 0.063W 0603
3103	4822 051 30101	100Ω 5% 0.062W
3104	4822 051 30759	75Ω 5% 0.062W
3105	4822 051 30151	150Ω 5% 0.062W
3106	4822 117 12925	47kΩ 1% 0.063W 0603
3107	4822 051 30759	75Ω 5% 0.062W
3108	4822 051 30101	100Ω 5% 0.062W
3109	4822 051 30759	75Ω 5% 0.062W
3110	4822 051 30221	220Ω 5% 0.062W
3111	4822 051 30151	150Ω 5% 0.062W
3114	4822 051 30101	100Ω 5% 0.062W
3115	4822 051 30479	47Ω 5% 0.062W
3116	4822 051 30479	47Ω 5% 0.062W
3117	4822 051 30471	47Ω 5% 0.062W
3118	4822 051 30223	22kΩ 5% 0.062W
3120	4822 051 30222	2.2kΩ 5% 0.062W
3121	4822 051 30561	560Ω 5% 0.062W
3122	4822 051 30471	47Ω 5% 0.062W
3123	4822 051 30223	22kΩ 5% 0.062W
3124	4822 051 30151	150Ω 5% 0.062W
3125	4822 117 12925	47kΩ 1% 0.063W 0603
3126	4822 051 30151	150Ω 5% 0.062W
3127	4822 117 12925	47kΩ 1% 0.063W 0603
3128	4822 117 12891	220kΩ 1%
3129	4822 051 30151	150Ω 5% 0.062W
3130	4822 117 12891	220kΩ 1%
3131	4822 117 13632	100kΩ 1% 0603 0.62W
3132	4822 117 13632	100kΩ 1% 0603 0.62W
3133	4822 117 13632	100kΩ 1% 0603 0.62W
3134	4822 117 13632	100kΩ 1% 0603 0.62W
3135	4822 117 13632	100kΩ 1% 0603 0.62W
3136	4822 117 13632	100kΩ 1% 0603 0.62W
3137	4822 117 13632	100kΩ 1% 0603 0.62W
3138	4822 117 13632	100kΩ 1% 0603 0.62W
3139	4822 051 30472	4.7Ω 5% 0.062W
3140	4822 051 30472	4.7Ω 5% 0.062W
3141	4822 051 30472	4.7Ω 5% 0.062W
3142	4822 051 30472	4.7Ω 5% 0.062W
3156	4822 051 30759	75Ω 5% 0.062W
3157	4822 051 30759	75Ω 5% 0.062W
3158	4822 051 30759	75Ω 5% 0.062W
3159	4822 051 30682	6.8Ω 5% 0.062W
3160	4822 117 12925	47kΩ 1% 0.063W 0603
3161	4822 051 30273	27kΩ 5% 0.062W
3162	4822 051 30101	100Ω 5% 0.062W
3163	4822 051 30759	75Ω 5% 0.062W
3164	4822 051 30689	68Ω 5% 0.063W 0603
3165	4822 051 30102	1kΩ 5% 0.062W
3168	4822 051 30101	100Ω 5% 0.062W
3169	4822 051 30759	75Ω 5% 0.062W
3170	4822 051 30151	150Ω 5% 0.062W
3171	4822 117 12891	220kΩ 1%
3172	4822 051 30151	150Ω 5% 0.062W
3173	4822 117 12925	47kΩ 1% 0.063W 0603
3174	4822 051 30151	150Ω 5% 0.062W
3175	4822 117 12891	220kΩ 1%
3176	4822 051 30151	150Ω 5% 0.062W
3177	4822 117 12925	47kΩ 1% 0.063W 0603
3178	4822 051 30759	75Ω 5% 0.062W
3184	4822 051 30273	27kΩ 5% 0.062W
3185	4822 051 30682	6.8Ω 5% 0.062W
3186	4822 051 30479	47Ω 5% 0.062W
3187	4822 051 30479	47Ω 5% 0.062W
3188	4822 051 30689	68Ω 5% 0.063W 0603
3189	4822 051 30102	1kΩ 5% 0.062W
3191	4822 051 30759	75Ω 5% 0.062W
3192	4822 051 30101	100Ω 5% 0.062W
3193	4822 051 30151	150Ω 5% 0.062W
3194	4822 117 12891	220kΩ 1%
3195	4822 051 30151	150Ω 5% 0.062W
3196	4822 117 12925	47kΩ 1% 0.063W 0603
3197	4822 051 30151	150Ω 5% 0.062W
3198	4822 117 12891	220kΩ 1%
3199	4822 051 30151	150Ω 5% 0.062W
3201	4822 051 30101	100Ω 5% 0.062W
3202	4822 051 30103	10kΩ 5% 0.062W
3203	4822 051 30109	10Ω 5% 0.062W
3204	4822 051 30103	10kΩ 5% 0.062W
3205	4822 051 30101	100Ω 5% 0.062W
3206	4822 051 30101	100Ω 5% 0.062W
3207	4822 051 30101	100Ω 5% 0.062W
3208	4822 051 30101	100Ω 5% 0.062W
3209	4822 051 30101	100Ω 5% 0.062W
3210	4822 051 30103	10kΩ 5% 0.062W
3211	4822 051 30472	4.7Ω 5% 0.062W
3212	4822 051 30103	10kΩ 5% 0.062W
3213	4822 051 30472	4.7Ω 5% 0.062W
3214	4822 051 30103	10kΩ 5% 0.062W
3215	4822 051 30101	100Ω 5% 0.062W
3216	4822 051 30101	100Ω 5% 0.062W
3217	4822 051 30101	100Ω 5% 0.062W
3218	4822 051 30101	100Ω 5% 0.062W
3219	4822 051 30103	10kΩ 5% 0.062W
3220	4822 051 30103	10kΩ 5% 0.062W

3221	4822 051 30103	10kΩ 5% 0.062W
3222	4822 051 30103	10kΩ 5% 0.062W
3223	4822 051 30101	100Ω 5% 0.062W
3224	4822 051 30101	100Ω 5% 0.062W
3225	4822 051 30472	4.7Ω 5% 0.062W
3227	4822 051 30101	100Ω 5% 0.062W
3228	4822 051 30101	100Ω 5% 0.062W
3229	4822 051 30103	10kΩ 5% 0.062W
3230	4822 051 30103	10kΩ 5% 0.062W
3231	4822 051 30103	10kΩ 5% 0.062W
3232	4822 051 30479	47Ω 5% 0.062W
3233	4822 051 30101	100Ω 5% 0.062W
3234	4822 051 30682	6.8Ω 5% 0.062W
3236	4822 051 30101	100Ω 5% 0.062W
3237	4822 051 30101	100Ω 5% 0.062W
3238	4822 051 30101	100Ω 5% 0.062W
3239	3198 021 31080	1Ω 5% 0603
3240	4822 051 30472	4.7Ω 5% 0.062W
3241	4822 051 30101	100Ω 5% 0.062W
3242	4822 051 30472	4.7Ω 5% 0.062W
3243	4822 051 30101	100Ω 5% 0.062W
3245	4822 051 30103	10kΩ 5% 0.062W
3246	4822 051 30101	100Ω 5% 0.062W
3247	4822 117 12925	47kΩ 1% 0.063W 0603
3248	4822 051 30101	100Ω 5% 0.062W
3249	4822 051 30472	4.7Ω 5% 0.062W
3250	4822 051 30101	100Ω 5% 0.062W
3251	4822 051 30472	4.7Ω 5% 0.062W
3252	4822 051 30472	4.7Ω 5% 0.062W
3253	3198 021 32290	22Ω 5% 0603
3254	4822 051 30339	33Ω 5% 0.062W
3255	4822 051 30339	33Ω 5% 0.062W
3256	4822 051 30101	100Ω 5% 0.062W
3258	3198 031 13390	4 x 33Ω 5% 1206
3259	3198 031 13390	4 x 33Ω 5% 1206
3260	3198 031 13390	4 x 33Ω 5% 1206
3261	3198 031 13390	4 x 33Ω 5% 1206
3262	3198 031 13390	4 x 33Ω 5% 1206
3263	3198 031 13390	4 x 33Ω 5% 1206
3264	3198 031 13390	4 x 33Ω 5% 1206
3265	4822 051 30103	10kΩ 5% 0.062W
3266	4822 051 30103	10kΩ 5% 0.062W
3267	4822 051 30103	10kΩ 5% 0.062W
3268	4822 051 30103	10kΩ 5% 0.062W
3269	4822 051 30103	10kΩ 5% 0.062W
3271	4822 051 30101	100Ω 5% 0.062W
3277	4822 051 30103	10kΩ 5% 0.062W
3287	4822 117 13632	100kΩ 1% 0603 0.62W
3288	4822 051 30103	10kΩ 5% 0.062W
3290	4822 051 30102	1kΩ 5% 0.062W
3292	4822 051 30101	100Ω 5% 0.062W
3293	4822 051 30339	33Ω 5% 0.062W
3301	4822 051 30472	4.7Ω 5% 0.062W
3302	4822 051 30222	2.2kΩ 5% 0.062W
3303	4822 051 30103	10kΩ 5% 0.062W
3304	4822 051 30101	100Ω 5% 0.062W
3305	4822 051 30103	10kΩ 5% 0.062W
3306	4822 051 30103	10kΩ 5% 0.062W
3307	4822 051 30105	1MΩ 5% 0.062W
3308	4822 051 30339	33Ω 5% 0.062W
3309	4822 051 30472	4.7Ω 5% 0.062W
3310	4822 051 30472	4.7Ω 5% 0.062W
3311	4822 051 30472	4.7Ω 5% 0.062W
3312	4822 051 30339	33Ω 5% 0.062W
3313	4822 051 30339	33Ω 5% 0.062W
3314	4822 051 30339	33Ω 5% 0.062W
3315	4822 051 30339	33Ω 5% 0.062W
3316	3198 031 13390	4 x 33Ω 5% 1206
3323	4822 051 30102	1kΩ 5% 0.062W
3324	4822 051 30223	22kΩ 5% 0.062W
3325	4822 051 30472	4.7Ω 5% 0.062W
3326	4822 051 30472	4.7Ω 5% 0.062W
3327	4822 051 30472	4.7Ω 5% 0.062W
3328	4822 051 30472	4.7Ω 5% 0.062W
3329	4822 051 30472	4.7Ω 5% 0.062W
3331	4822 051 30472	4.7Ω 5% 0.062W
3333	4822 051 30101	100Ω 5% 0.062W
3336	4822 051 30101	100Ω 5% 0.062W
3401	4822 051 30109	10Ω 5% 0.062W
3402	4822 051 30101	100Ω 5% 0.062W
3404	4822 051 30101	100Ω 5% 0.062W
3406	4822 051 30101	100Ω 5% 0.062W
3408	4822 051 30101	100Ω 5% 0.062W
3410	4822 051 30393	39kΩ 5% 0.062W
3411	4822 117 13632	100kΩ 1% 0603 0.62W
3412	4822 051 30152	1.5Ω 5% 0.062W
3413	4822 051 30109	10Ω 5% 0.062W
3414	4822 051 30333	33kΩ 5% 0.062W
3415	4822 117 13632	100kΩ 1% 0603 0.62W
3417	4822 051 30101	100Ω 5% 0.062W
3419	4822 051 30474	470kΩ 5% 0.062W
3420	4822 051 30103	10kΩ 5% 0.062W
3422	4822 051 30101	100Ω 5% 0.062W
3423	4822 051 30109	10Ω 5% 0.062W
3425	4822 051 30101	100Ω 5% 0.062W
3426	4822 051 30471	47Ω 5% 0.062W
3427	4822 051 30471	47Ω 5% 0.062W
3428	4822 051 30101	100Ω 5% 0.062W
3429	4822 051 30103	10kΩ 5% 0.062W
3430	4822 051 30472	4.7Ω 5% 0.062W
3431	4822 051 30222	2.2kΩ 5% 0.062W
3432	4822 051 30475	4.7MΩ 5% 0.062W 0603
3433	4822 051 30152	1.5Ω 5% 0.062W
3436	4822 051 30102	1kΩ 5% 0.062W
3437	4822 117 12864	82kΩ 5% 0.6W
3438	4822 051 30334	330kΩ 5% 0.062W
3439	4822 051 30561	560Ω 5% 0.062W
3440	4822 051 30393	39kΩ 5% 0.062W
3441	2322 704 62003	20kΩ 1% 0603
3442	4822 051 30474	470kΩ 5% 0.062W
3443	4822 117 12889	270kΩ 1% 0.063W 0603
3444	4822 051 30222	2.2kΩ 5% 0.062W
3445	4822 051 30334	330kΩ 5% 0.062W
3446	4822 051 30123	12kΩ 5% 0.1W
3447	4822 051 30102	1kΩ 5% 0.062W
3449	4822 051 30472	4.7Ω 5% 0.062W
3450	4822 051 30472	4.7Ω 5% 0.062W
3457	4822 051 30222	2.2kΩ 5% 0.062W
3458	4822 051 30101	100Ω 5% 0.062W
3459	4822 051 30101	100Ω 5% 0.062W
3500	4822 117 12925	47kΩ 1% 0.063W 0603
3501	4822 051 30223	22kΩ 5% 0.062W
3503	5322 117 13031	5.6kΩ 1% 0.063W 0603
3504	4822 051 30472	4.7Ω 5% 0.062W
3505	2322 704 63302	3.3kΩ 1% 0603
3506	4822 051 30103	10kΩ 5% 0.062W
3561	3198 021 38220	8.2kΩ 5% 0.062W 0603
3581	4822 051 30101	100Ω 5% 0.062W
3582	4822 051 30101	100Ω 5% 0.062W
3583	4822 051 30472	4.7Ω 5% 0.062W
3584	4822 051 30759	75Ω 5% 0.062W
3606	4822 051 30222	2.2kΩ 5% 0.062W
3607	4822 051 30222	2.2kΩ 5% 0.062W
3608	4822 051 30272	2.7kΩ 5% 0.062W
3609	4822 051 30339	33Ω 5% 0.062W
3612	4822 051 30101	100Ω 5% 0.062W
3613	4822 051 30222	2.2kΩ 5% 0.062W
3614	4822 051 30101	100Ω 5% 0.062W
3617	3198 031 13390	4 x 33Ω 5% 1206
3618	3198 031 13390	4 x 33Ω 5% 1206
3619	3198 031 13390	4 x 33Ω 5% 1206
3620	3198 031 13390	4 x 33Ω 5% 1206
3621	3198 031 13390	4 x 33Ω 5% 1206
3622	3198 031 13390	4 x 33Ω 5% 1206
3623	4822 051 30101	100Ω 5% 0.062W
3624	4822 051 30101	100Ω 5% 0.062W
3625	4822 051 30101	100Ω 5% 0.062W
3626	4822 051 30339	33Ω 5% 0.062W
3627	4822 051 30339	33Ω 5% 0.062W
3701	4822 051 30102	1kΩ 5% 0.062W
3702	4822 051 30102	1kΩ 5% 0.062W
3703	2322 704 65109	51Ω 1% 0603
3704	2322 704 65109	51Ω 1% 0603
3705	3198 021 31080	1Ω 5% 0603
3706	4822 117 12971	15Ω 5% 0603 0.62W
3707	3198 031 13390	4 x 33Ω 5% 1206
3708	3198 031 13390	4 x 33Ω 5% 1206
3709	3198 031 13390	4 x 33Ω 5% 1206
3710	3198 031 13390	4 x 33Ω 5% 1206
3711	3198 031 13390	4 x 33Ω 5% 1206
3712	3198 031 13390	4 x 33Ω 5% 1206
3713	3198 031 13390	4 x 33Ω 5% 1206
3714	3198 031 13390	4 x 33Ω 5% 1206
3715	4822 051 30339	33Ω 5% 0.062W
3716	4822 051 30339	33Ω 5% 0.062W
3717	4822 051 30339	33Ω 5% 0.062W
3721	4822 051 30759	75Ω 5% 0.062W
3723	4822 051 30759	75Ω 5% 0.062W
3725	4822 117 11817	1.2kΩ 1% 0.0625W
3726	4822 051 30152	1.5Ω 5% 0.062W
3727	4822 051 30759	75Ω 5% 0.062W
3730	4822 051 30561	560Ω 5% 0.062W
3738	4822 051 30472	4.7Ω 5% 0.062W
3739	4822 051 30103	10kΩ 5% 0.062W
3742	4822 051 30102	1kΩ 5% 0.062W
3743	4822 051 30103	10kΩ 5% 0.062W
3745	4822 051 30689	68Ω 5% 0.063W 0603
3746	4822 051 30689	68Ω 5% 0.063W 0603
3747	3198 031 13310	4X330Ω 5% 1206
3748	3198 031 13310	4X330Ω 5% 1206
3749	3198 031 13310	4X330Ω 5% 1206
3750	3198 031 13310	4X330Ω 5% 1206
3751	4822 051 30102	1kΩ 5% 0.062W
3753	4822 051 30102	1kΩ 5% 0.062W
3754	4822 051 30759	75Ω 5% 0.062W
3755	4822 051 30759	75Ω 5% 0.062W
3756	4822 051 30759	75Ω 5% 0.062W
3757	3198 021 32290	22Ω 5% 0603
3758	3198 021 32290	22Ω 5% 0603
3759	3198 021 32290	22Ω 5% 0603
3760	3198 021 32290	22Ω 5% 0603
3761	3198 021 32290	22Ω 5% 0603
3790	3198 021 32290	22Ω 5% 0603
3791	3198 021 32290	22Ω 5% 0603
3792	3198 021 32290	22Ω 5% 0603
3793	3198 021 32290	22Ω 5% 0603
3902	4822 051 30101	100Ω 5% 0.062W
3903	4822 051 30101	100Ω 5% 0.062W
3913	4822 051 30101	100Ω 5% 0.062W
3914	4822 051 30101	100Ω 5% 0.062W
3915	4822 051 30101	100Ω 5% 0.062W
3916	4822 051 30101	100Ω 5% 0.062W
3917	4822 051 30223	22kΩ 5% 0.062W
3925	4822 051 30331	330Ω 5% 0.062W
3926	4822 051 30331	330Ω 5% 0.062W
3927	4822 051 30331	330Ω 5% 0.062W
3928	4822 051 30331	330Ω 5% 0.062W
3929	4822 051 30331	330Ω 5% 0.062W
3930	4822 051 30331	330Ω 5% 0.062W
3952	4822 051 30101	100Ω 5% 0.062W
3953	4822 051 30101	100Ω 5% 0.062W
3961	3198 021 31080	1Ω 5% 0603
3962	3198 021 31080	1Ω 5% 0603
3963	4822 051 30101	100Ω 5% 0.062W
3964	4822 117 12891	220kΩ 1%
3965	4822 051 30101	100Ω 5% 0.062W
3966	4822 117 12891	220kΩ 1%
3967	4822 117 13632	100kΩ 1% 0603 0.62W
3968	4822 117 13632	100kΩ 1% 0603 0.62W
3969	4822 117 13632	100kΩ 1% 0603 0.62W
3970	4822 117 13632	100kΩ 1% 0603 0.62W
3971	4822 051 30472	4.7Ω 5% 0.062W
4005	4822 051 30008	Jumper 0603
4006	4822 051 30008	Jumper 0603
4062	4822 051 30008	Jumper 0603
4113	4822 051 30008	Jumper 0603
4119	4822 051 30008	Jumper 0603
4154	4822 051 30008	Jumper 0603
4156	4822 051 30008	Jumper 0603
4166	4822 051 30008	Jumper 0603
4168	4822 051 30008	Jumper 0603
4183	4822 051 30008	Jumper 0603
4190	4822 051 30008	Jumper 0603
4203	4822 051 30008	Jumper 0603
4204	4822 051 30008	Jumper 0603
4205	4822 051 30008	Jumper 0603
4301	4822 051 30008	Jumper 0603
4302	4822 051 30008	Jumper 0603
4402	4822 051 30008	Jumper 0603
4407	4822 051 30008	Jumper 0603
4411	4822 051 30008	Jumper 0603
4412	4822 051 30008	Jumper 0603
4416	4822 051 30008	Jumper 0603
4419	4822 051 30008	Jumper 0603
4421	4822 051 30008	Jumper 0603
4501	4822 051 30008	Jumper 0603
4502	4822 051 30008	Jumper 0603
4505	4822 051 30008	Jumper 0603
4506	4822 051 30008	Jumper 0603
4586	4822 051 30008	Jumper 0603
4589	4822 051 30008	Jumper 0603
4590	4822 051 30008	Jumper 0603
4604	4822 051 30008	Jumper 0603
4605	4822 051 30008	Jumper 0603
4606	4822 051 30008	Jumper 0603
4732	4822 051 30008	Jumper 0603
4733	4822 051 30008	Jumper 0603
4734	4822 051 30008	Jumper 0603
4735	4822 051 30008	Jumper 0603
4736	4822 051 30008	Jumper 0603
4737	4822 051 30008	Jumper 0603
4738	4822 051 30008	Jumper 0603
4739	4822 051 30008	Jumper 0603
4740	4822 051 30008	Jumper 0603
4741	4822 051 30008	Jumper 0603
4909	4822 051 30008	Jumper 0603
4978	4822 051 30008	Jumper 0603

5000	2422 549 42896	Bead 120Ω 100MHz
5001	3198 018 33970	0.39µH 10% 0805
5002	4822 157 11866	1.8µH 10%
5105	2422 549 44197	Bead 220Ω at 100MHz
5216	2422 549 43769	Bead 30Ω at 100MHz
5300	3198 018 51090	10µH 10% 0603
5302	4822 157 11716	Bead 30Ω at 100MHz
5303	4822 157 11716	Bead 30Ω at 100MHz
5304	2422 549 44197	Bead 220Ω at 100MHz
5305	4822 157 11716	Bead 30Ω at 100MHz
5306	4822 157 11716	Bead 30Ω at 100MHz

5307	4822 157 11716	Bead 30Ω at 100MHz
5308	4822 157 11716	Bead 30Ω at 100MHz
5501	2422 535 94995	10μH 20%
5502	2422 536 00339	33μH 20%
5503	2422 535 94995	10μH 20%
5504	2422 549 43062	Bead 600Ω at 100MHz
5560	2422 549 43062	Bead 600Ω at 100MHz
5561	2422 549 43062	Bead 600Ω at 100MHz
5562	2422 549 43062	Bead 600Ω at 100MHz
5563	2422 549 43062	Bead 600Ω at 100MHz
5583	2422 549 43062	Bead 600Ω at 100MHz
5584	2422 549 43062	Bead 600Ω at 100MHz
5585	2422 549 43062	Bead 600Ω at 100MHz
5587	2422 549 43062	Bead 600Ω at 100MHz
5588	2422 549 43062	Bead 600Ω at 100MHz
5591	2422 549 43062	Bead 600Ω at 100MHz
5592	2422 549 43062	Bead 600Ω at 100MHz
5593	2422 549 43062	Bead 600Ω at 100MHz
5594	2422 549 43062	Bead 600Ω at 100MHz
5600	2422 549 45333	Bead 120Ω at 100MHz
5601	2422 549 45333	Bead 120Ω at 100MHz
5602	2422 549 45333	Bead 120Ω at 100MHz
5701	2422 549 44197	Bead 220Ω at 100MHz
5702	2422 549 44197	Bead 220Ω at 100MHz
5703	2422 549 44197	Bead 220Ω at 100MHz
5704	2422 549 44197	Bead 220Ω at 100MHz
5705	2422 549 44197	Bead 220Ω at 100MHz
5721	2422 549 44197	Bead 220Ω at 100MHz
5722	2422 549 44197	Bead 220Ω at 100MHz
5723	2422 549 44197	Bead 220Ω at 100MHz
5724	2422 549 44197	Bead 220Ω at 100MHz
5725	2422 549 44197	Bead 220Ω at 100MHz
5726	2422 549 44197	Bead 220Ω at 100MHz
5727	2422 549 44197	Bead 220Ω at 100MHz
5728	2422 549 44197	Bead 220Ω at 100MHz
5729	2422 549 44197	Bead 220Ω at 100MHz
5730	2422 549 44197	Bead 220Ω at 100MHz
5731	2422 549 44197	Bead 220Ω at 100MHz
5941	2422 549 44197	Bead 220Ω at 100MHz
5942	2422 549 44197	Bead 220Ω at 100MHz
5943	3198 018 51080	1μH 10% 0603
5944	3198 018 51080	1μH 10% 0603
5961	4822 157 11778	5.6μH 0805 10%
5972	4822 157 11778	5.6μH 0805 10%

6001	4822 130 11397	BAS316
6002	4822 130 11525	1SS356
6102	5322 130 34337	BAV99
6150	9340 548 52115	PDZ5.1B
6151	9340 548 52115	PDZ5.1B
6152	9340 548 52115	PDZ5.1B
6153	9340 548 52115	PDZ5.1B
6154	9340 548 52115	PDZ5.1B
6401	4822 130 11397	BAS316
6402	4822 130 10837	UDZS8.2B
6403	4822 130 11148	UDZ4.7B
6404	9340 548 71115	PDZ33B
6405	4822 130 11397	BAS316
6406	5322 130 34337	BAV99
6407	9340 548 71115	PDZ33B
6408	4822 130 11397	BAS316
6411	3198 020 55680	BZX384-C5V6
6412	4822 130 11397	BAS316
6502	3198 010 10730	SS36
6941	4822 130 11397	BAS316

7000	4822 130 11155	PDTC114ET
7060	5322 130 60159	BC846B
7061	9352 723 71118	TDA9886T/V4
7103	9352 772 31125	74LVC1G3157GW
7104	9352 772 31125	74LVC1G3157GW
7105	9352 772 31125	74LVC1G3157GW
7106	5322 209 14481	HEF4053BT
7107	4822 209 73852	PMBT2369
7108	4822 130 60373	BC856B
7109	5322 130 60159	BC846B
7110	4822 130 11155	PDTC114ET
7111	4822 130 11155	PDTC114ET
7112	4822 130 11155	PDTC114ET
7113	4822 130 11155	PDTC114ET
7150	5322 130 60159	BC846B
7151	3198 010 42310	BC847BW
7201	9322 227 86671	M30620SPGP#U5C
7202	9322 229 46685	BD45275G
7203		For SW see item 0800
7205		For SW see item 0801
7300	4822 130 11155	PDTC114ET
7301	4822 130 11057	2N7002
7304	9965 000 04199	BSN20
7305	9965 000 04199	BSN20
7306		For SW see item 0802
7307	9322 219 66671	SII9011CLU
7401	9352 681 65518	TDA9330N3
7402	4822 130 60373	BC856B
7403	4822 130 60373	BC856B
7404	9965 000 04199	BSN20
7405	9965 000 04199	BSN20
7406	4822 130 10255	MUN2213
7500	9322 179 61668	LF80CPT
7502	9322 219 75685	FET SI2333DS-E3
7504	4822 130 11155	PDTC114ET
7505	9322 202 34668	L5973D
7506	4822 130 11155	PDTC114ET
7560	3198 010 42310	BC847BW
7601	9322 225 69671	AD9985AKSTZ-110
7635	4822 209 17398	LD1117DT33
7701	9322 235 50671	K4D263238I-UC50
7702	4822 209 17398	LD1117DT33
7703	9322 217 23668	LD1117DT25C
7704	9322 189 19668	LD1086D2T18
7721	9322 221 70671	SVPEX42
7907	9322 196 03702	MSP3411G-QI-B8V3
7908	9340 425 20115	BC847BS
7909	9340 425 20115	BC847BS
7910	9340 425 20115	BC847BS
7961	9352 703 94118	UDA1334BT/N2
7962	5322 209 14481	HEF4053BT
7963	4822 130 11155	PDTC114ET

Side I/O and Control Board [D]

Various

1010	4822 267 10748	Connector 3p
1011	4822 276 13775	Switch 1p 0.1A 12V
1012	4822 276 13775	Switch 1p 0.1A 12V
1013	4822 276 13775	Switch 1p 0.1A 12V
1014	4822 276 13775	Switch 1p 0.1A 12V
1016	3139 267 20481	Control Assy [E]
1232	2422 026 05701	Socket Phone 1p f
1250	2422 026 05742	Socket Cinch 3p
1251	2422 026 05494	Connector 7p f
1252	2422 025 12491	Connector 7p m
1254	2422 025 06353	Connector 5p m
1278	4822 267 10567	Connector 4p
8010	3139 131 06551	Cable 3p/560/3p Bk
8252	3139 131 07601	Cable 7p/560/7p Bk
8254	3139 131 06691	Cable 5p/560/5p Bk

2171	4822 126 14241	330pF 0603 50V
2172	4822 126 14241	330pF 0603 50V
2173	4822 126 14241	330pF 0603 50V
2174	4822 126 14241	330pF 0603 50V
2175	4822 124 22652	2.2μF 20% 50V
2176	4822 126 13881	470pF 5% 50V
2178	4822 126 13881	470pF 5% 50V
2180	4822 124 22652	2.2μF 20% 50V

3011	4822 051 30151	150Ω 5% 0.062W
3012	4822 051 30391	390Ω 5% 0.062W
3013	3198 021 31820	1.8kΩ 5% 0.062W 0603
3015	4822 117 12968	820Ω 5% 0.62W
3150	4822 117 12925	47kΩ 1% 0.063W 0603
3151	4822 051 30151	150Ω 5% 0.062W
3152	4822 117 12925	47kΩ 1% 0.063W 0603
3153	4822 051 30151	150Ω 5% 0.062W
3156	4822 117 12968	820Ω 5% 0.62W
3157	4822 117 12968	820Ω 5% 0.62W
3158	4822 051 30759	75Ω 5% 0.062W
4185	4822 051 30008	Jumper 0603
4186	4822 051 30008	Jumper 0603

6161	4822 130 11416	PDZ6.8B

CRT Panel [F]

Various

1317	4822 267 10637	Connector 5p
1335	3104 301 08281	Connector 1p
1351	4822 265 41113	Connector 7p
1354	2422 500 00004	Socket CRT 10p 32"
1354	2422 500 80087	Socket CRT 9p 29"
1361	2422 025 16382	Connector 3p m
1382	4822 267 10735	Connector 3p

2313	4822 124 12373	47μF 20% 250V
2319	4822 122 30043	10nF 80% 63V
2324	4822 121 70581	1.5nF 5% 2kV
2332	4822 126 13193	4.7nF 10% 63V
2333	3198 016 36810	680pF 25V 0603
2336	3198 017 33330	33nF 20% 16V 0603
2338	2022 318 00109	100nF 250V
2339	2022 318 00109	100nF 250V
2340	2022 318 00109	100nF 250V
2343	3198 016 36810	680pF 25V 0603
2344	4822 126 13193	4.7nF 10% 63V
2346	3198 017 33330	33nF 20% 16V 0603
2347	4822 124 80791	470μF 20% 16V
2348	3198 024 44730	47nF 50V 0603
2352	4822 126 13193	4.7nF 10% 63V
2353	3198 016 36810	680pF 25V 0603
2356	3198 017 33330	33nF 20% 16V 0603
2361	2238 586 59812	100nF 20% 50V 0603
2363	4822 124 40764	22μF 100V
2364	2020 557 90732	4.7nF 10% 250V
2365	4822 126 13193	4.7nF 10% 63V
2367	2238 586 59812	100nF 20% 50V 0603
2368	4822 124 40764	22μF 100V
2369	4822 126 14241	330pF 0603 50V
2370	2238 586 59812	100nF 20% 50V 0603
2371	4822 126 11663	12pF 5% 50V 0603
2372	4822 126 11663	12pF 5% 50V 0603
2373	4822 126 11663	12pF 5% 50V 0603
2375	3198 017 34730	47nF 16V 0603
2381	4822 124 40433	47μF 20% 25V
2382	4822 126 13193	4.7nF 10% 63V
2383	2238 930 11541	220pF 5% 200V
2384	2238 586 59812	100nF 20% 50V 0603
2385	2238 586 59812	100nF 20% 50V 0603
2386	3198 017 34730	47nF 16V 0603
2387	4822 126 14507	18pF 5% 50V 0603
2388	4822 126 13193	4.7nF 10% 63V
2389	2238 586 59812	100nF 20% 50V 0603
2390	4822 124 11947	10μF 20% 16V

3305	4822 052 10108	1Ω 5% 0.33W
3306	4822 052 10568	5.6Ω 5% 0.33W
3306	4822 052 11688	6Ω8 5% 0.5W
3307	4822 052 10568	5.6Ω 5% 0.33W
3307	4822 052 11338	3.3Ω 5% 0,5W
3317	4822 050 11002	1kΩ 1% 0.4W
3318	4822 052 10109	10Ω 5% 0.33W
3319	4822 051 30154	150kΩ 5% 0.062W
3320	4822 051 30223	22kΩ 5% 0.062W
3321	4822 051 30273	27kΩ 5% 0.062W
3322	4822 051 30154	150kΩ 5% 0.062W
3325	3198 021 31820	1.8kΩ 5% 0.062W 0603
3331	4822 116 52175	100Ω 5% 0.5W
3332	3198 013 04710	470Ω 20% 0.5W
3333	4822 116 52175	100Ω 5% 0.5W
3334	3198 013 04710	470Ω 20% 0.5W
3335	4822 116 52175	100Ω 5% 0.5W
3336	3198 013 04710	470Ω 20% 0.5W
3337	2322 242 13104	100kΩ 20W
3338	4822 051 30222	2.2kΩ 5% 0.062W
3339	4822 051 30272	2.7kΩ 5% 0.062W
3340	4822 051 30102	1kΩ 5% 0.062W
3341	2322 242 13104	100kΩ 20W
3342	4822 051 30272	2.7kΩ 5% 0.062W
3343	4822 051 30222	2.2kΩ 5% 0.062W
3344	4822 050 11002	1kΩ 1% 0.4W
3345	4822 050 23309	33Ω 1% 0,6W
3347	3198 013 01520	1.5kΩ 20% 0.5W
3348	4822 050 11002	1kΩ 1% 0.4W
3350	4822 116 52244	15kΩ 5% 0.5W
3351	2306 207 03151	150Ω 5% 0.5W
3352	2322 242 13104	100kΩ 20W
3353	4822 051 30222	2.2kΩ 5% 0.062W
3354	4822 051 30272	2.7kΩ 5% 0.062W
3355	4822 051 30102	1kΩ 5% 0.062W
3357	2122 552 00004	1mA 18V 0603
3359	4822 051 30682	6.8Ω 5% 0.062W
3360	4822 051 30221	220Ω 5% 0.062W
3361	4822 050 24701	470Ω 1% 0.6W
3362	2120 108 94133	R Fuse 10Ω
3363	4822 051 30561	560Ω 5% 0.062W
3364	4822 051 20108	1Ω 5% 0.1W
3365	4822 051 30472	4.7Ω 5% 0.062W

3366	4822 051 30683	68kΩ 5% 0.062W
3367	4822 116 52297	68kΩ 5% 0.5W
3368	4822 051 30561	560Ω 5% 0.062W
3370	4822 051 20108	1Ω 5% 0.1W
3371	2312 915 11002	1kΩ 1% 0.5W
3372	2312 915 11002	1kΩ 1% 0.5W
3373	2322 257 41152	1.5kΩ 5W
3375	4822 051 30681	680Ω 5% 0.062W
3377	4822 051 30272	2.7kΩ 5% 0.062W
3378	4822 051 30221	220Ω 5% 0.062W
3380	4822 051 30222	2.2kΩ 5% 0.062W
3381	4822 051 30222	2.2kΩ 5% 0.062W
3385	4822 051 30681	680Ω 5% 0.062W
3389	2120 108 94132	1Ω 1206
3392	4822 051 30271	270Ω 5% 0.062W
3393	4822 051 30109	10Ω 5% 0.062W
3394	4822 051 30472	4.7Ω 5% 0.062W
3395	4822 116 52219	330Ω 5% 0.5W
3396	3198 021 31820	1.8kΩ 5% 0.062W 0603
3397	2122 552 00004	1mA 18V 0603
3998	4822 117 11817	1.2kΩ 1% 0.0625W
4303	4822 051 30008	Jumper 0603
4304	4822 051 30008	Jumper 0603
4305	4822 051 30008	Jumper 0603
4306	4822 051 30008	Jumper 0603
4307	4822 051 30008	Jumper 0603
4308	4822 051 30008	Jumper 0603
4309	4822 051 30008	Jumper 0603
4310	4822 051 20008	Jumper 0805
4321	4822 051 30008	Jumper 0603
4322	4822 051 20008	Jumper 0805
4330	4822 051 30008	Jumper 0603

5303	4822 157 11867	5.6μH 5%
5304	4822 526 10704	Bead 50 Ω at 100MHz
5308	4822 157 11867	5.6μH 5%
5339	4822 526 10704	Bead 50 Ω at 100MHz
5361	4822 157 11411	Bead 80Ω at 100MHz

6307	4822 130 11416	PDZ6.8B
6325	4822 130 10838	UDZ3.3B
6331	9322 197 45703	BAV21WS
6332	9322 197 45703	BAV21WS
6333	9322 197 45703	BAV21WS
6334	4822 130 10838	UDZ3.3B
6361	4822 130 11397	BAS316
6362	4822 130 11397	BAS316

7330	4822 209 33365	TDA6111Q/N4
7331	4822 130 60373	BC856B
7332	4822 130 41246	BC327-25
7333	4822 130 40981	BC337-25
7340	4822 209 33365	TDA6111Q/N4
7350	4822 209 33365	TDA6111Q/N4
7361	5322 130 60159	BC846B
7362	4822 130 60373	BC856B
7363	9322 195 05687	KTB631KY
7364	9322 195 14687	KTD600KY
7365	4822 130 60887	BF840
7366	9352 628 51112	TDA8941p/N1

Front Interface Panel [J]

Various

1060	3139 267 21641	Front Interf. Panel [J]
1211	2422 025 16268	Connector 2p m
1231	2422 128 03111	Switch
1505	2422 025 16268	Connector 2p m
1693	2422 025 10738	Connector 6p m
8505	3104 311 03011	Cable 2p/340/2p Bk
8693	3139 131 07121	Cable 6p/680/6p Bk

2691	4822 124 12379	220μF 25V
2692	3198 017 41050	1μF 10V 0603
2698	5322 121 42386	100nF 5% 63V

3500	4822 053 21335	3.3MΩ 5% 0.5W
3501	4822 053 21335	3.3MΩ 5% 0.5W
3691	4822 116 52283	4.7kΩ 5% 0.5W
3693	4822 116 83872	220Ω 5% 0.5W
3694	4822 116 52283	4.7kΩ 5% 0.5W
3696	4822 051 30154	150kΩ 5% 0.062W
4601	4822 051 30008	Jumper 0603

6691	9322 230 38682	LTL-102CBK5HCR
6692	9322 206 78667	TSOP34836UH1B
6693	9322 197 36682	LTR-301

IAP Board

Various

J1	Connector 3p m
J2	Connector 25p m
U1	Socket, DIP14

C1	10μF 16V

R1	2kΩ 5% 0805
R2	2kΩ 5% 0805

D1	1N4148
D2	1N4148
D3	1N4148
D4	1N4148
D5	1N4148
D6	1N4148
D7	1N4148
D8	1N4148

U1	SN74LS05, DIP14

11. Revision List

Manual xxxx xxx xxxx.0

- First release.